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Cours interactif de philosophie donné dans le cadre du Programme Europe, Éducation, École
Diffusé en visioconférence le 17 novembre 2017 de 10h10 à 12h00
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LA SCIENCE SELON LE DOCTEUR HOUSE

Cette séance vous propose d'explorer la nature de la science et de la démarche expérimentale à travers le troisième épisode de la première saison de la série télévisé *Dr House* : "Cherchez l'erreur" ("Ockham's Razor" : première diffusion aux États-Unis le 30 novembre 2004, réalisé par Bryan Singer et scénarisé par David Shore).

Résumé de l'épisode : Brandon, jeune homme de 22 ans, s'évanouit et présente plusieurs symptômes qu'aucune maladie ne semble pouvoir expliquer. Foreman suggère deux pathologies simultanées, alors que House soutient une cause unique en vertu du principe du rasoir d'Ockham (l'explication la meilleure est toujours la plus simple). Bien que les hypothèses semblent contredites par l'aggravation soudaine de l'état du patient, House persiste à défendre sa théorie d'un empoisonnement accidentel à la colchicine par des pilules anti-goutte confondues avec des pilules anti-toux. House guérit finalement le patient, et réussit à prouver — pour lui-même — la solidité de son diagnostic (en identifiant les pilules analogues).

Texte — HOUSE MD, S01E3 : le fait polémique

— House: Why do you want me to treat this guy?
— Wilson: Blood pressure's not responding to IV fluids.
— House: No, no I didn't ask how you plan to con me into treating him, I asked you why YOU want me to treat him.
— Wilson: He's sick, I care, I'm pathetic.
— House: There are about a billion sick people on the planet, why this one?
— Wilson: Because this one's is in our emergency room.
— House: Ah, so it's a proximity issue. If somebody was sick in the third floor stairwell that's who we would be talking about.
— Wilson: Yes, I checked the stairwell, it's clear.
— House: Ok then, emergency room guy it is.
— Wilson: Wait, how was that so easy?
— House: You know why.
— Wilson: Blood pressure's not responding to IV fluids?
— House: Yeah, that's just weird.

Texte — HOUSE MD, S01E3 : la modélisation et la bonne simplification

— House: CBC was unremarkable, abdominal CT scan didn't show anything. So, people, differential diagnosis. What's wrong with her?
— Cameron: Him.
— House: Him, her, does it matter? Does anyone think it is a testicular problem? No, so Chase...
— Chase: Absidia infection?
— Foreman: No, you wouldn't get the rash or cough. What about arthritis? Accompanying vasculitis causes nerve damage –

- Cameron: No, it wouldn't cause the blood pressure problems. Allergy?
- Chase: The kid's got abdominal pain. Maybe carcinoid?<
- Foreman: Nah, but then you wouldn't get the – [House slams a giant book in front of Foreman.]
- House: Foreman, if you're going to list all the things it's not, it might be quicker to do it alphabetically.< Let's see. Absidia? Excellent.< Doesn't account for any of the symptoms.<
- Cameron: No condition accounts for all these symptoms.

Texte — HOUSE MD, S01E3 : le rasoir d'Ockham

- Foreman: Occam's razor. The simplest explanation is always the best.
- House: And you think one is simpler than two?
- Cameron: I'm pretty sure it is, yeah.
- House: Baby shows up. Chase tells you that two people exchange fluids to create this being. I tell you that one stork dropped the little tyke off in a diaper. Are you going to go with the two or the one ?
- Foreman: I think your argument is specious. [specious : spécieux, qui est susceptible de tromper et de faire illusion par son apparence de vérité ou de logique.]
- House: I think your tie is ugly.
- House: Why is one simpler than two ? It's lower, it's lonelier, but is it simpler ? Each one of these conditions is about a thousand to one shot; that means that any two of them happening at the same time is a million to one shot. Chase says the cardiac infection is a ten million to one shot, — which makes my idea ten times better than yours. [Pause. Foreman looks defeated] Get a calculator, run the numbers.
- Chase: We'll run the tests.

Texte — HOUSE MD, S01E3 : la confiance raisonnable ?

- Chase: Tell the family House's theory?
- Foreman: Two odd conditions striking completely coincidentally at the exact same time?
- Cameron: I didn't phrase it quite that way.
- Chase: They agree to treatment?
- Foreman: Of course they did, we're doctors. They believe whatever we tell them. So, is that our job? House's puppets? He comes up with an insane idea, we get to pretend it's not?
- Cameron: His insane ideas are usually right. We've been here long enough to –
- Foreman: - been here long enough to have Stockholm Syndrome.
- Chase: What? Because we don't hate him? He thinks outside the box, is that so evil?
- Foreman: He has no idea where the box is! If you guys think he's right, go home. Relax. Just wait for the kid to get all better. I'm going to the lab to test for viral infections.

Texte — HOUSE MD, S01E3 : "Reality is almost always wrong"

- House: It was so perfect. It was beautiful.
- Wilson: Beauty often seduces us on the road to truth.
- House: And triteness kicks us in the nads.
- Wilson: So true.
- House: This doesn't bother you?
- Wilson: That you were wrong? I try to work through the pain.
- House: I was not wrong. Everything I said was true. It fit. It was elegant.
- Wilson: So... reality was wrong.
- House: Reality is almost always wrong.

Texte — HOUSE MD, S01E3 : une ruse socratique ?

- House: What did you find out?
- Foreman: The kidney failure. It's acute interstitial nephritis.
- House: I wonder if that's significant.
- Foreman: It means the antibiotics didn't cause the kidney failure. How did you know?

- House: Well, if you guys hadn't been so busy trying to prove me wrong, you might have checked in on the poor kid.
- Foreman: You visited a patient?
- House: I was sitting by his bed all morning, just so he'd know someone was there for him.
- Wilson: I looked in on him. He's much better.
- House: Ergo, the treatment's working. Ergo, me right, you wrong.
- Foreman: Hey, I'm glad for the kid. [He leaves.]
- Wilson: That smugness of yours really is an attractive quality.
- House: Thank you. It was either that or get my hair highlighted. Smugness is easier to maintain.
- Wilson: I get that you're not a big believer in the 'catching flies with honey' approach, but do you honestly think you'll collect a jarful by cleverly taunting them?
- House: Flies, no. Doctors, sure. If I'd said to Foreman, "Nice try, it was a great guess, but not this time," what do you think he'd be doing right now?
- Wilson: I think he'd be going home not feeling like a piece of crap.
- House: Exactly.
- Wilson: You want him to feel like a piece of crap?
- House: No, I don't want him going home.

Texte — HOUSE MD, S01E3 : la superstition

- Foreman: If I'm right, the antibiotics you prescribed could block his kidneys and liver, impeding his ability to fight off the virus. Could kill him.
- House: Well, that certainly would be a concern. Fifty bucks ? [...]
- Foreman: You wanna bet on the patient's health?
- House: You think that's bad luck? Do you think that God will smite him because of our insensitivity? Well, if God does, you make a quick fifty. [...] Go check his white blood count. If he's fighting off a virus like you think it'll be way up.

Texte — HOUSE MD, S01E3 : la passion de la vérité

- Wilson: "You know what, I'm not interested."
- House: "Not curious?"
- Wilson: "No, because I'm well-adjusted."

Texte — Gaston BACHELARD

Déjà l'observation a besoin d'un corps de précautions qui conduisent à réfléchir avant de regarder, qui réforment du moins la première vision, de sorte que ce n'est jamais la première observation qui est la bonne. L'observation scientifique est toujours une observation polémique, elle confirme ou infirme une thèse antérieure, un schéma préalable, un plan d'observation ; elle montre en démontrant ; elle hiérarchise les apparences ; elle transcende l'immédiat ; elle reconstruit le réel après avoir reconstruit ses schémas.

Gaston BACHELARD, Le nouvel esprit scientifique (1938)

Texte — Claude BERNARD

L'expérimentateur doit douter de son sentiment, c'est-à-dire de l'idée a priori ou de la théorie qui lui servent de point de départ ; c'est pourquoi il est de précepte absolu de soumettre toujours son idée au *criterium* expérimental pour en contrôler la valeur. Mais quelle est au juste la base de ce criterium expérimental ? Cette question pourra paraître superflue après avoir dit et répété avec tout le monde que ce sont les faits qui jugent l'idée et nous donnent l'expérience. Les faits seuls sont réels, dit-on, et il faut s'en rapporter à eux d'une manière entière et exclusive. C'est un fait, un fait brutal, répète-t-on encore

souvent ; il n'y a pas à raisonner, il faut s'y soumettre. Sans doute, j'admets que les faits sont les seules réalités qui puissent donner la formule à l'idée expérimentale et lui servir en même temps de contrôle; mais c'est à la condition que la raison les accepte. Je pense que la croyance aveugle dans le fait qui prétend faire taire la raison est aussi dangereuse pour les sciences expérimentales que les croyances de sentiment ou de foi qui, elles aussi, imposent silence à la raison. En un mot, dans la méthode expérimentale comme partout, le seul *criterium* réel est la raison.

Claude BERNARD, *Introduction à l'étude de la médecine expérimentale* (1865)

... Et BACHELARD : "Le réel n'est jamais « ce qu'on pourrait croire» mais il est toujours ce qu'on aurait dû penser." (*La Formation de l'esprit scientifique*, 1938).

Texte — Karl POPPER

The method of science depends on our attempts to describe the world with simple theories: theories that are complex may become untestable, even if they happen to be true. Science may be described as the art of systematic over-simplification—the art of discerning what we may with advantage omit.

Karl Raimund Popper and William Warren Bartley (ed.), *The Open Universe: an Argument for Indeterminism* (1991), 44.

Texte — OCKHAM

Il est inutile d'accomplir par un plus grand nombre de moyens ce qu'un nombre moindre de moyens suffit à produire. (...) Quand des choses doivent rendre vraie une proposition, si deux choses suffisent à produire cet effet, il est superflu d'en mettre trois.

Guillaume d'Ockham (1280-1349)