I. La rédaction d'abstracts

Les abstracts servent à l'indexation et au classement des articles de recherche publiés. Ils reprennent les différentes parties de l'article, à savoir son objet, les hypothèses de base, les méthodes, les faits nouveaux et les résultats essentiels.

Ils permettent l'accès à l'information à l'échelle internationale, et à ce titre, leurs structures sont codifiées pour répondre à des normes de clarté et de concision. De ce fait, ils présentent des caractéristiques facilement repérables et reproductibles.

Grammaire en contexte

➨ Caractéristiques grammaticales et syntaxiques

◗ Quels temps utiliser dans les abstracts ?

Dans les abstracts, les temps utilisés presque exlusivement sont le présent simple et le prétérit.

Le présent simple

Il permet de généraliser, de décrire, de définir, et de caractériser. Il situe l'action hors d'un contexte présent contrairement au présent progressif, alors qu'en français, il n'y a pas d'opposition parallèle.

NB : "What are you doing?"
"I'm reading." ("I read" est impossible)

« Qu'est-ce que tu fais? »
Il y a deux réponses possibles : « Je lis » ; « Je suis en train de lire ».

Le prétérit (voir « grammaire en contexte », chapitre 2)

Il est utilisé lorsque l'auteur veut indiquer que l'activité / expérience / action a été réalisée à un moment donné du passé, que la date soit précisée

ou non dans le texte. Ainsi il est utilisé pour la présentation des méthodes et des résultats.

Exemples

Voici quelques exemples illustrant les temps des verbes dans les abstracts de différentes disciplines.

Le présent simple

- Environmental occurrences and toxicity threshold values **span** more than six orders of magnitude in concentration. (description)
- Radiative energy-balance models **reveal** that Earth could exist in any one of three discrete climate states. (description)
- This work **presents** the preparation and characterization of nanocrystalline conducting materials. (description)
- **Generally**, the nanosized oxides **show** a (pseudo)-cubic crystalline fluorite structure which **evolves** into the most stable fluorite symmetry. (caractéristique)
- Premature adrenarche and functional adolescent androgen excess **are** common disorders. (définition)
- Optimizing compilers **often perform** an operation **known as** common subexpression elimination to improve code efficiency. (description)
- The example of the acoustic Doppler equipment (ADCP) **proves** that an increasing demand for current and discharge data can be met at fairly low cost. (généralisation)
- It **is known that** life processes below the melting point actively **evolve**. (caractéristique)
- **In general** this cut **is** irrational and consequently the crystal **is** aperiodic. (généralisation)

Le préterit

- There is mounting evidence that pan-glacial states **existed** at least twice **in the Cryogenian**.
- Environmental forces **had** a hand in the **origin of metazoa**.
- The nanosized Nd-based oxide **showed** a very high sintering activity even at relatively low temperatures. (résultats)
- To determine the role of 21-hydroxylase gene mutations in these disorders, we **performed** molecular genotype analysis on 48 children and adolescents. (méthode)
- The frequency of heterozygosity **was** significantly greater among symptomatic patients than among the healthy controls. (résultats)
- Female non-athletes **consumed** the least amount of alcohol whereas male athletes **drank** the greatest amount. (résultat)

- **After studying** more than 100 different samples of calaverite $Au_{1-p}Ag_pTe_2$, three famous mineralogists **declared** the invalidity of the law of rational indices.
- **To reinvestigate** this question, we **cultured** human fibroblasts from the skin of one individual volunteer collected at different ages.
- **Over a period of 27 years**, we **obtained** skin cells at appropriate intervals, and **established** eight fibroblast lines.
- **Previous experiments** in CNT **showed** that constant temperatures across magnetic surfaces were [*concordance des temps*] characteristic of CNT plasmas, implying thermal confinement times much less than particle confinement times.

◗ Quand utiliser le passif dans les abstracts ?

Dans un abstract, explicitant la démarche et indiquant les résultats les plus pertinents, le discours est centré sur les actions et non pas sur les auteurs. Il n'est donc pas surprenant de trouver une occurrence de verbes au passif largement supérieure à celle qu'on trouve dans le corps de l'article et a fortiori dans d'autres types d'écrits.

Exemples

Dans les exemples qui suivent, remarquez qu'une construction à la voix active serait grammaticalement correcte, mais peu conforme à l'usage.

1. Consensus is lacking on whether the world ocean **was** fully **glaciated** or largely **unglaciated**.
2. Superspace **was** then **developed** to deal with the new experimental observations.
3. *In vitro* release **was assessed** using fluorescent-tagged stratifin.
4. The view-based system **was found** to perform better than the ranking system.
5. The infection **was cleared** from the lung tissue.
6. The differences in the selection of search concepts **were** mainly **related** *to* preferring different search strategies.
7. In splenic lymphocytes, apoptosis **was observed** early at 1 week after inoculation.
8. The method **was used** to analyze 79 flour and cereal products.
9. Links between references and citations **could** not **be made** easily.
10. Molecular genotype analysis **was performed** on 48 children and adolescents.
11. The long-run availability of a duplex system **was analyzed**.
12. A stochastic process endowed with stationary measures **was employed.**
13. The particular case of deterministic repair **is considered**.
14. Heterogeneity **must** first **be understood**.

15. 188 mothers who tested positive for chlamydial antigens **were identified**; the infants of 178 of them **were followed** for up to eight months.

Remarque : On observe que le verbe au passif termine souvent la phrase (sans complément d'objet direct ou COD). Il est ainsi éloigné de son sujet grammatical. (Attention : le verbe, s'il est construit au mode actif avec un COD n'en est jamais séparé)

- **The physics** behind the possible life supporting capability of nanometric films of undercooled liquid interfacial water, which can also "mantle" the surfaces of the much larger micrometer-sized microbes, **is discussed**.
- **The effects** of nanotube concentration and aspect ratio, viscosity of the suspending liquid, and initial diameter of the self-thinning thread in uniaxial elongation **are elucidated**.

➨ Caractéristiques lexicales des abstracts

◗ Avec quels mots préciser un nom ?

L'exigence de concision et de précision oblige l'auteur à affecter les noms (le plus souvent, sujet de la phrase) d'un grand nombre de qualificatifs ou de mots descriptifs, à savoir :

- un adjectif ou participe présent (-ing) ou participe passé (-ed), accompagné ou non d'un adverbe,
- un substantif qui fonctionne grammaticalement comme un adjectif (voir « grammaire en contexte », chapitre 3),
- un groupe prépositionnel (*in*, *of*, *for* …),
- un mot de coordination (*and*, *or*, *as well as* …),
- une proposition relative (*that* …, *which* …, *whose* …),
- l'article défini ou indéfini (« the » ou « a » ; voir deuxième partie : « corps de l'article »).

Exemples

Voici des phrases tirées d'abstracts qui illustrent ces caractéristiques.

1. … changes **that readily** occur **during** the first four processing steps **for** heat-treatable aluminium alloy.
2. **… to** the damage-tolerant design **of** components and structures us**ing** these materials.
3. … **on** thin constrained, high-purity silver and gold interlayers **between** stronger base metals.
4. … high-resolution low-energy electron diffraction techniques
5. … a **statistically** significant difference

6. ... one of the most **rapidly** evolving gene-enzyme systems in the genus
7. ... **into** a drosophila transformation vector **where** it was under the control of an hsp-70 gene sequence
8. ... the effect **primarily** exert**ed by** inhibitors **of** proteinases **against** this alteration **on the basis of both** chemical and morphological criteria.
9. ... **which** is **often** considered **as** a key event **in** the onset of acute tubular necrosis induc**ed by** these drugs
10. ... **in** a model **of** primary culture **of** embryonic rat fibroblasts **which typically** develop lysosomal phospholipodosis **when** incubated with gentamicin
11. ... **either** by pruning a direct**ed** acyclic graph **to** replace eliminat**ed** subexpressions **by** memory fetches **of** stored values **or** by using partial-redundancy elimination
12. ... **among** the qualitative and quantitative relationships **between** the amount of TiO2 or TiO2 / SnO2 coupled particles **and** the amount of ·OH radicals **produced by** these systems.

Modèles

➨ Deux exemples d'abstracts

Dans ces modèles, remarquez :

- les temps des verbes (pour la plupart, le présent simple et le prétérit),
- l'utilisation du passif presque exclusivement,
- l'utilisation de plusieurs adverbes (*recently*, *currently*, *conversely*, *properly*, *widely*, *frequently*, etc.).

Rheologica Acta
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The effect of step-stretch parameters on capillary breakup extensional rheology (CaBER) measurements
Erik Miller[1], Christian Clasen[2] and Jonathan P. Rothstein[1]
1. Department of Mechanical and Industrial Engineering, University of Massachusetts, Amherst, MA 01003, USA
2. Department of Chemical Engineering, Katholieke Universiteit Leuven, 3001 Leuven, Belgium

Abstract Extensional rheometry has only recently been developed into a commercially available tool with the introduction of the capillary breakup extensional rheometer (CaBER). CaBER is currently being used to measure the

transient extensional viscosity evolution of mid to low-viscosity viscoelastic fluids. The elegance of capillary breakup extensional experiments lies in the simplicity of the procedure. An initial step-stretch is applied to generate a fluid filament. What follows is a self-driven uniaxial extensional flow in which surface tension is balanced by the extensional stresses resulting from the capillary thinning of the liquid bridge. In this paper, we describe the results from a series of experiments in which the step-stretch parameters of final length, and the extension rate of the stretch were varied and their effects on the measured extensional viscosity and extensional relaxation time were recorded. To focus on the parameter effects, well-characterized surfactant wormlike micelle solutions, polymer solutions, and immiscible polymer blends were used to include a range of characteristic relaxation times and morphologies. Our experimental results demonstrate a strong dependence of extensional rheology on step-stretch conditions for both wormlike micelle solutions and immiscible polymer blends. Both the extensional viscosity and extensional relaxation time of the wormlike micelle solutions were found to decrease with increasing extension rate and strain of the step-stretch. For the case of the immiscible polymer blends, fast step-stretches were found to result in droplet deformation and an overshoot in the extensional viscosity which increased with increasing strain rates. Conversely, the polymer solutions tested were found to be insensitive to step-stretch parameters. In addition, numerical simulations were performed using the appropriate constitutive models to assist in both the interpretation of the CaBER results and the optimization of the experimental protocol. From our results, it is clear that any rheological results obtained using the CaBER technique must be properly considered in the context of the stretch parameters and the effects that preconditioning has on viscoelastic fluids.

Human Cell
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Donor age reflects the replicative lifespan of human fibroblasts in culture
Kazuhiko KAJI, Toshiro OHTA, Nobuyuki HORIE, Eiji NARU, Miho HASEGAWA and Naotoshi KANDA

Human fibroblasts, which have a finite lifespan in cultures, have been widely used as a model system for cellular aging, and frequently used as one model of human aging. But whether cellular aging contributes to organismal aging has been controversial. To reinvestigate this question, we cultured human fibroblasts from the skin of one individual volunteer collected at different ages. Over a period of 27 years (donor age 36 years to 62 years), we obtained skin cells four times at appropriate intervals, and established eight fibroblast lines. These human fibroblasts have presented evidence for a correlation between donor age and proliferative lifespan *in vitro*. This result parallels the fact that telomeric DNA size cultured fibroblasts decrease with the increase in donor age. These cell lines had a normal diploid human chromosome constitution and will be useful in studies of human biology including aging.

Lexique approprié

Voici les verbes, noms et adverbes les plus fréquemment rencontrés dans les abstracts.

◗ Liste des verbes les plus fréquents

Ces verbes décrivent le plus souvent la démarche entreprise lors des travaux de recherche. Il est d'autant plus utile de les connaître qu'ils s'utilisent quelle que soit la discipline scientifique abordée.

Voici par ordre alphabétique les **verbes** les plus fréquents indiquant la démarche scientifique et l'expérimentation ou la méthodologie dans un abstract. (voir « lexique transdisciplinaire », chapitre 6)

A B
acquire
address (someone)
agree with
analyze
apply (something to)
argue
assess
associate (something with)
base (soemthing) on

C
calculate
carry out
characterize (US), characterise (GB)
check
compare (something to / with)
conclude
conduct
confirm
consider
contribute
control

D
debate
decrease
define
demonstrate
describe
determine
differ
discuss

E
elucidate
emphasize
establish
estimate
evaluate
examine
exclude
explain
explore
extrapolate

F G H I
find
follow
gather
highlight
identify
illustrate
include
increase
indicate
induce
infer
integrate
interpret
introduce (something to / into)
investigate
involve

J L M
justify
label
lead (to)
measure
minimize
modulate
monitor

N O P
need
note
observe
obtain
perform
permit, allow, enable
prefer
present (something to)
proceed
produce
program (US); programme (GB)
prove

R
range (from ... to)
refer (to)
relate (to)
report
represent
require

S
search
select
show
solve
study
suggest (éviter propose)
summarize
survey
synthesize
T U V
test
treat
underline
use
validate
verify

Exemples

Voici des phrases tirées de différents abstacts, utilisant certains de ces verbes par ordre alphabétique. Remarquez l'utilisation très fréquente du passif.

A

- Behavior was **analyzed** for the three compositions.
- The long-run availability of a duplex system was **analyzed**.
- The method was used to **analyze** 79 flour and cereal products,
- Transformations can be defined and **applied** within a high-level rewrite system.
- The purpose of this work was to develop a controlled release delivery system that could be **applied** while closing the wound.
- Heterozygosity for 21-hydroxylase deficiency may be **associated** *with* functional adolescent hyperandrogenism.
- Apoptosis of lung lymphocytes was **associated** *with* a decrease in mRNA for Bcl-2 and an increase in mRNA for Bim.
- Apoptosis of lung lymphocytes is **associated** *with* changes in both pro- and anti-apoptotic proteins.

B

- The paper is **based** *on* an empirical study where 32 researchers with different backgrounds first analyzed search requests.

C

- This generalisation consisted in using at least four integers to fully **characterise** each individual diffraction peak.
- To test this hypothesis, this study **characterized** the impact of common aldehyde fixatives on the MRI properties of a rat brain model.
- Lymphocyte apoptosis was **characterized** in a model of animal pneumonia.
- The results for uniaxial elongation are **compared** *with* those for simple shear.
- The example of the acoustic Doppler equipment proves that an increasing demand for current data can be met at fairly low cost **compared** *with* conventional methods.
- The purpose of this study was to **compare** five-kilometer racing performance after 24 hours with and without cold water immersion.