

STRENGTHENING ANALYTICAL THINKING FOR OBSERVATIONAL STUDIES (STRATOS)

Glossary Panel (GP) - Defining common meaning for statistical terms

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The 'Glossary Panel' of the STRATOS Initiative has two overarching objectives: (1) unification and harmonization of statistical terms and their definitions, thus creating a conceptual foundation for the work in the STRATOS initiative and the resp. dissemination of guidance, and (2) open access to this glossary for the scientific community. For discussions within or between Topic Groups dealing with specific statistical themes, having one glossary of relevant statistical terms will promote consistency between guidance documents, clarify meaning of these terms, and help avoid misunderstanding and misinterpretation.

For many common statistical terms we decided to use the relevant terms from The Dictionary for Clinical Trials [1] as the starting point. Several members of GP selected about 700 (out of nearly 3000) terms from this comprehensive dictionary. Later, we extended the dictionary with about 100 terms from NICE [2]. These terms may need some modifications, and it is intended that each topic group adds terms relevant in their area. The two sources have clinical backgrounds, and each topic group may have other relevant specific statistical terms which are not clearly defined. For example, missing definitions of terms, multiple definitions of the same term or multiple terms for the same concept are consequences that arise due to underrating the importance of initial data analysis (IDA) [3]. Other glossaries with statistical terms exist [1], see [4] as an example. In order to extend the number of terms in the STRATOS glossary, we would be very pleased to collaborate with these glossary projects and would welcome their members to join the Glossary panel.

The approach is to first extract the existing terms and definitions from the two resources and transfer them to a database. Individual terms can then be edited and added via a web-based user interface, which allows multiple editors to work on the same terms in parallel, so that the content can be harmonized. A team of experts clarifies terms and content in conjunction with members of STRATOS topic groups and panels. In a controlled editorial process, the existing concepts are reviewed. The group of editors may suggest various changes that affect the textual description of the terms or the term label. They may also suggest the introduction of

new terms to or deletions from the glossary. Care must be taken to ensure that terms and definitions are consistent throughout the glossary. Definitions for the STRATOS glossary should find the broadest possible approval among scientists in our field to ensure acceptance and usage by the scientific community.

Intermediate objectives for the STRATOS Glossary are to create a terminological foundation that is as complete and consistent as possible, based on the objectives of STRATOS. The long-term aim for the Glossary panel is the development of a terminology covering the linguistic variability and hierarchical relationships of statistical terms so that users can search systematically for appropriate definitions.

While terminologies pertain to the use of human language, the ultimate goal of current conceptual definitions should be the machine-processable or -interpretable format of a so-called ontology. The original linguistic identifiers and definitions only play a subordinate role in an ontology, rather the meaning of the types or classes is defined by the hierarchical relation of the classes among each other and especially by the relationships of instances in the classes to each other. Such a description-logic based axiomatization is then readable and interpretable in software applications. Ontologies can be used consistently for the machine-interpretable annotation of scientific data, so that the semantics of these data can be preserved and used in an interoperable way.

In contrast to the biomedical domain, only a few ontologies are available, [2][3][4] covering statistical concepts [5,6]. With the advance of open data, it has become obvious to a larger community that formal descriptions of statistical and scientific matters are urgently needed for metadata description of data in very different scientific fields [7]. Based on existing ontologies, the coverage of statistical concepts should be extended while consistency between concepts is maintained. We hope that this initiative will be able to stimulate discussions and interest among many partners from the relevant methodological disciplines for active support and collaborations.

The panel is presently chaired by Martin Boeker and Marianne Huebner, members are Willi Sauerbrei, Carsten Oliver Schmidt and Peggy Sekula.

References

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4. Kubick WR, Ruberg S, Helton E. Toward a Comprehensive CDISC Submission Data Standard. *Drug Information Journal*. 2007 May 1;41(3):373–82.
5. Bandrowski A, Brinkman R, Brochhausen M, Brush MH, Bug B, Chibucos MC, et al. The Ontology for Biomedical Investigations. *PLOS ONE*. 2016 Apr 29;11(4):e0154556.

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1. <https://www.cdisc.org/standards/terminology/controlled-terminology>; <https://evs.nci.nih.gov/ftp1/CDISC/Glossary/>
2. <https://biportal.bioontology.org/ontologies/OBI>
3. <https://biportal.bioontology.org/ontologies/STATO>
4. <https://biportal.bioontology.org/ontologies/OBCS>

Warren was elected Treasurer of the Australasian Region at the Regional Conference in Hobart in 1999 and served in this role until 2019. In that role, he has made an outstanding contribution to the local region. In his role as Treasurer for the Australasian Region, Warren took care of all the membership details and payments, following up members for overdue payments, keeping email addresses current, and issuing receipts. He dealt with the IBS head office in Washington whenever journals went missing or records needed fixing. He was involved with the selection and payment of student and conference awards. He played a very active role in the organisation and finances of the Regional conferences, 10 during his tenure, keeping track of registrations, taking all payments, returning receipts and producing a financial report for each of these. He organised the registration of the Region as a company and obtained an Australian Business Number for the Australasian Region; he is currently involved with setting up incorporation for the region, a legal status that limits the financial liability of the committee and members. Warren's work is always meticulous, and he has an excellent memory for all the rules and systems used by the society. He is always approachable, pleasant and helpful in all his dealings with members. Australasian Region Council members will attest that he has provided calm, measured and wise counsel on many matters. The Australasian Region Council has recognised that the role Warren filled over the last 20 years will probably take two people to handle in future and has redefined the role of Treasurer and created the new role of Membership Secretary.

Internationally, Warren served for 2 years as an Australasian Region representative on the IBS Council, the predecessor of what is now the IBS Representative Council. He also served on the Communications Committee for about 4 years in the 2000s, and on the Finance Committee in the late 2000s/early 2010s for about 4 years, including 2 years as Chair.

Warren has been a successful applied biometrician throughout his career. He is the author/co-author of over 130 articles, covering a wide range of applied sciences from ecology, plant biology, animal science, horticulture, agricultural research, soil research, tree physiology, marine biology, epidemiology, wildlife research, cell biology, botany and food chemistry. Despite the extra work he has to do around conferences, Warren has also spoken at most of the IBS-AR conferences over the last 30 years on the practical applications of biometrics to a wide range of applied sciences.

Samuel Mueller (previous President of the Australasian Region) commented: "Warren is more than just a treasurer, he's a treasure to our region!"



Warren Muller, now an IBS honorary Life Member

Region News

Australasian Region (AR)

<http://www.biometricsociety.org.au/about.html>

IBS-AR President

Alan Walsh (Australian National University) was elected as President on the regional council for 2019-2020. As 2020 draws to its tumultuous end, Alan is stepping down with Vanessa Cave (AgResearch) taking over as President in the new year.

Over the past two years, Alan has done an excellent job, including highlights such as being a driving force behind the IBS-AR incorporation, supporting women's success and rejuvenating the regional council. We thank Alan for the work he has done, and welcome Vanessa warmly in her new role!



Alan Walsh, President of the Australasian Region (2019-2020); and Vanessa Cave, incoming President (2021-2022)

Congratulations to Warren Muller

Citation for Warren Muller written by Alan Walsh

Warren Muller has been awarded Honorary Life Membership in the International Biometric Society (IBS) for his dedicated service to the Australasian Region as Treasurer for the last 20 years, and for his service to IBS.

Regional Conference, Bay of Islands NZ, 29th November- 3 December 2021