



BSI Standards Publication

Language resource management — Semantic annotation framework (SemAF)

Part 14: Spatial semantics

National foreword

This British Standard is the UK implementation of ISO 24617-14:2023.

The UK participation in its preparation was entrusted to Technical Committee TS/1, Terminology.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2023
Published by BSI Standards Limited 2023

ISBN 978 0 539 15697 3

ICS 01.020

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2023.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

**Language resource management —
Semantic annotation framework
(SemAF) —**

**Part 14:
Spatial semantics**

*Gestion des ressources linguistiques — Cadre d'annotation
sémantique (SemAF) —*

Partie 14: Sémantique spatiale





COPYRIGHT PROTECTED DOCUMENT

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Metamodel	2
5 Semantic types	4
5.1 General.....	4
5.2 Basic types.....	4
5.2.1 General.....	4
5.2.2 Extended basic types.....	4
5.2.3 Functional types.....	4
5.3 Place and spatial entity.....	5
5.4 Paths.....	6
6 Events and paths generated from events	7
6.1 General.....	7
6.2 Two types of verb constructions.....	7
6.3 Typing event-paths.....	8
7 Semantic interpretation of annotation structures	9
7.1 Overview.....	9
7.2 Semantic forms.....	9
7.3 Model theory.....	11
7.3.1 General.....	11
7.3.2 Interpretation.....	12
Bibliography	14

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 37, *Language and terminology*, Subcommittee SC 4, *Language resource management*.

A list of all parts in the ISO 24617 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document establishes a semantic ground for supporting ISO 24617-7 (spatial information), which specifies an abstract syntax for the annotation of spatial information in language. It also specifies a way of translating the annotation structures generated by the abstract syntax of ISO 24617-7 into well-formed semantic forms. These semantic forms are represented in a type-theoretic first-order logic and made interpretable according to a model.

This document:

- validates the abstract specification of ISO 24617-7 for the annotation of spatial information in language on semantic grounds;
- specifies an interoperable format for interpreting spatial information, both static and dynamic.

Dynamic spatial information involves spatio-temporal information as well as information about motions in space and time. This document aims at satisfying such needs. An understanding of information in natural language is necessary for many computational linguistics and artificial intelligence (AI) applications. An explicit semantics is necessary for the specification provided by ISO 24617-7, as the representations created in accord with that language will not have a significant impact on AI and automatic inference without explicit interpretation.

