# UNL, Challenges and Misunderstandings. Some answers

## Edmundo Tovar*, Jesús Cardeñosa*

* Validation and Business Applications Research Group
Artificial Intelligence Department
Universidad Politécnica de Madrid
Campus de Montegancedo, s/n, Boadilla del Monte, 28660 Madrid, Spain
etovar@fi.upm.es, carde@fi.upm.es

### Abstract

The UNL, either as language or as a system, is not well known due to several reasons. At this moment, UNL is not only the name of a language for computers aiming at supporting multililingual services in Internet. It is also a system, with a defined architecture and a wide panorama of applications and possibilities to support business, institutional and educational applications, all of them going beyond the linguistic barriers. Nobody doubts about the possibilities of this type of system. However, this system today supported by an organization based on a Foundation (placed in Geneva and created only to support this UN initiative) needs the collaboration and financial help of all kind of sources (UN is not financing the initiative at this moment). This is a hard task. Perhaps the more significant case about the impossibility to reach financial support for this initiative and also about the different research and application issues has been the high number of project proposals made for different Call for Proposals of the EC in the area of Econtent and IST, as well. All of them have been rejected, thus creating a wall for the development of the systems of the European languages, that are actually the more advanced within the UNL Consortium. This paper will try to analyze the different evaluations made for the various proposals in order to clear up the real state of this system and also the reasons of the low level of knowledge about this important initiative. Our goal then is to examine the opinions of the EC evaluators giving in the paper the adequate answers to them even by the side of the UNL Consortium too. Dissemination policies and internal organization of the UNL will be clarified for a better analysis in the immediate future.

## 1. The New Organization for the UNL Program

The Universal Networking Language (UNL in the following) arises by the initiative from the Institute of Advanced Studies (UNU/IAS), of the United Nations University in 1996. The mission of the UNL Programme (UNDL, 2002a) is to develop and promote a multilingual communication platform for Internet, with the purpose of enabling all peoples to share information and knowledge in their native language. The IAS first selected a group of institutions from fifteen countries that were in charge of developing the modules for each corresponding language. The milestones and partial results are revised in yearly meetings. In Brussels, 1999 it was presented more than a project. It was presented an Organization for the future. But the most important fact is perhaps that, after three years of development work of the participating teams, the UNL Language specifications were made public. That is, anyone can develop, potentially, for public or commercial use, components and systems integrable with the UNL system.

The current organization of the UNL Programme (UNLP) has been put on the hands of the recently created UNDL Foundation (UNDL, 2002b), a non-profit international organization created to continue the research and development initiated by the UNU/IAS in Information Technologies, in particular, in the field of interlingua communication, UNL and its applications in all areas of human knowledge and activities. The UNDL deploys the UNL facilities to assist all peoples in bridging the digital and cultural divide, in accordance with the principles and objectives of the United Nations and its Members States.

The new organization of the UNL Programme has a network of persons and institutions under the direction and sponsorship of the UNDL Foundation. The UNLP network consists of the UNL Center, the Language Centers (LC) of each language and other elements as UNL National Units, Permanent Committees and ad-hoc working groups.

The UNL Center has the overall responsibility (UNDL, 2002c) for promoting and coordinating the UNLP. In this organizational structure the LC are considered as an expansion of the UNL Center for a given language and is responsible for the research, development and maintenance of the UNL System in that language. For all these tasks, each LC must, as opposed to the past, procure the necessary financial means for the support of the LC and UNLP operations (article VII.4.e, UNLP Statute). In this paper we explain the efforts addressed by European LC, in the last years trying to get funding from the European Commission (EU) Research Programmes.

## 2. History of the proposals presented

European LCs have been involved in the last years in the preparation of a lot of proposals in different EU Programmes including UNL as technological base. All of them failed. We think that there are no only specific reasons to reject every proposal. This total coincidence may can be explained additionally by global reasons related to the perception and knowledge of the UNL technology by the EC evaluators as the political and technical actions of the UNL Organization.

Globally speaking, we have collected information of 8 project proposals to the EC programmes with the UNL technology as basis; all of them rejected. However, we are going to focus in this analysis over the last 5 proposals because two reasons: they are the last ones, and we, this research Group as support of the Spanish LC, has had a very active participation in them. The three other proposals were made by consortiums coordinated by companies. In all cases the application of the UNL technology fit very well with the system proposed. These proposals were named HEREIN-ML, and AQUITRA with applications for the International Office of Water. Both proposals were thought for the multilingual support of the

European Heritage Project (www.european-heritage.net). Today the European languages are covering part of the multilingual support with the UNL technology with a high degree of precarity and with direct investment in resources from the Spanish government and the Spanish Language Centre, using resources of free collaborators. However in these proposals the UNL was not accepted at all as alternative for the multilingual support.

The 5 proposals considered (see table 1), in chronological order, will be described through the summary of goals and the action lines of the Programme in which the proposal has been developed.

| Date | Identifier | Programme |
|------|-----------|-----------|
| July 00 | QANET 3312 | Econtent Preparatory actions |
| October 00 | QANET IST2000-28568 | RTD Proposal, IST |
| January 01 | LINGWEB 30130 | RTD Proposal, IST |
| July 01 | EU-UNL: 22045 | Econtent Programme. Demonstration Project |
| November 01 | MULTIDOC: 34702 | RTD Proposal. IST |

Table 1: A view of the proposals presented

QANET-3312(econtent): Quality Assurance Procedures for an Internet Multilingual System

**Summary of goals**: This proposal aimed to make a selection of resources for testing and measures of coverage together with the definition of a common lexicon of general purpose, to address the definition and construction of tools to verify and maintain their resources, to test the cross lingual tools and resources, and to generate the Quality Manuals according to ISO9001 and validation procedures to support the implantation of the Quality System in the UNL Programme.

**Action lines** of the RTD Programme:

Action Line 3 This proposal fits with this action because this action line mentions explicitly the problems derived from linguistic diversity and from the services to be supplied with an effective infrastructure in order to sooth the consequences of the growing number of languages in Europe and the increase of institutional and commercial relations.

QANET (RTD) IST2000-28568: Quality Assurance System for Internet Multilingual Applications

**Summary of goals**: This proposal aimed to define the Quality System of the UNL Program of the United Nations to overcome the linguistic barriers in Internet. The definition of the Quality System required the generation of resources (lexicon corpora addressed to this task) and methods

to evaluate the future existing systems integrated with to the UNL system. For that two industrial applications would have been developed. One UNL editor based on existing analysers (demonstrating so the integrability of this approach and the capability to reuse existing systems) and also a target language Generator completely developed from the current public specifications of the UNL language that has real intention to be exploited after the project.

**Action lines** of the RTD Programme:

Action Line 3.3.3 (2000 WorkProgramme). Multilingual communication services and appliances.

This proposal fits with this key action. It is addressed concretely to services and appliances independently of the language of the user. The core of the system (the UNL System) has been developed to the wider multilingual capabilities system built until this moment. In fact, UNL forms the way to access from any language and generate any other language in the world.

LINGWEB (IST2000-30130): Multilingual Web-site Deployment based on an Interlingua Technology.

**Summary of goals**: We aimed to deploy the UNL technology that up to that moment we had had several basic components to create the UNL network addressed to support the multilinguism in Internet. Concretely we aimed to obtain a complete implantation of multilingual services in the user web-site based on UNL technology. The user would be the Organisation Barcelona2004. Besides, we would define the materials and contents to support international training courses including the testing and adaptation of the tools involved in the maintenance of the system and the UNL coding like part of the Technology Transfer process. These tools should be adapted for any other uses out of the Language Centers environment.

**Action lines** of the RTD Programme:

Action Line 3.3.4 (2000WorkProgramme). Trials in multilingual e-service and ecommerce. The proposal is conceived as a Trial. Technology users are at the same time suppliers of the contents to offer an information service in a highly multilingual environment. What underlies the concern of this proposal is the effective evaluation of a new and open technology in a real environment, and to define accurately Technology Transference tasks. EU-UNL was presented as a Demonstration project to prove the economic viability of the service on a specific field.

EU-UNL: European Use of UNL

**Summary of goals**: EU-UNL focuses in the implementation of the UNL technology for multilingual dissemination of contents on the field of the quality of water and on the field of tourism. The project includes the user corporate web implementation of a multilingual document generation system and definition of procedures for technology transfer, planning and implementation of measures and cost evaluation, as well as the complete set of materials to assure the necessary support for internal training in the organizations. EU-UNL constitutes just a case-study for the viability of the implementation of this technology that can be extended to different languages and different fields.

**Action Line** of the econtent Programme: Action 2. Enhancing content production in a multilingual and multicultural environment. The overall goal in this action is to investigate and experiment with new strategies, partnerships and solutions for designing e-content products and services that can accommodate local languages and cultural conventions. EU-UNL aimed to demonstrate the capabilities of the UNL technology for multilingual dissemination of e-contents as well as for introducing a new paradigm of creation and management of multilingual web-sites.

MULTIDOC-IST-34702: A system for multilingual document dissemination

**Summary of goals**: The goal of this proposal was the development and integration of the components for a multilingual dissemination system in the Web using the public and open UNL. This technology constituted the base of the multilingual support for the proposed application. Initially we planned to demonstrate it in a workplace/business scenario, but were equally applicable in a personal dissemination scenario. For providing multilingual functionalities to Internet publishers UNL would be embedded into their current documents. We would also provide the tools needed for processing the new multilingual documents.

**Action lines** of the RTD Programme:

Action Line III.3.1 (2001WorkProgramme). The Multidoc directly addresses most of the concrete objectives listed under action line III.3.1, such as the advance towards a fuller realisation of the multilingual Internet for personal development and informational purposes, wider availability and more effective production and use of multilingual information, Multilanguage design, authoring and publishing of online (web) multimedia documents, or multilingual generation.

## 3. The evaluation of the proposals

We aim in this section to reflect the view of the proposers and the EC evaluators for each proposal described. Before, the evaluation criteria and the process followed in the IST Programme are explained.

### 3.1. Evaluation criteria for the IST Programme

A number of evaluation criteria are common to all the programmes of the fifth framework programmes. Independent experts examine each eligible proposal against these criteria. The specific programme decisions provide further details of these criteria and may also provide for additional evaluation criteria that apply only to the particular programme(s) concerned. Any particular interpretations of the criteria to be used for evaluation and any weights and thresholds to be applied to the criteria are set out in the programme-specific annexes to this document and referred to in calls and all relevant supporting documentation.

For the detailed examination of proposals against the criteria set out in the rules for participation, the experts will generally provide marks and comments. In addition, the experts are asked to examine certain evaluation criteria by answering a set of questions relevant to the specifications referred to in the call. The following questions are addressed at an appropriate moment in the evaluation:

- Does the proposal address the parts of the work programme, including policy issues, open for the particular call? If the proposal is only partially in line with the call, does it have sufficient merit to be considered in its entirety or partially?
- Have relevant ethical issues been adequately taken into account in the preparation of the proposal; is the proposed research compliant with fundamental ethical principles, if relevant? Is the research proposed in line with Community policies, if relevant; have appropriate safeguards/impact assessment regarding

Community policies (e.g. environment) been taken into account, where necessary?
- Does the proposal follow the requirements for presentation (notably requirements for anonymity)?

In the case of negative answers to these questions, the experts are required to provide comments to justify their answers. On the basis of the experts' remarks, the Commission reserves the right not to continue with the evaluation of any proposal which is found not to fulfill one or more of the above requirements. In clear-cut cases (for example, a proposal which addresses a research task which is not open in the particular call), a proposal may be ruled out of scope or contrary to clearly stated policy requirements at the moment that the eligibility checks are carried out.

All eligible proposals that conform to the requirements of the call are examined for their quality and relevance by the Commission assisted by external experts. Experts examine proposals and provide marks for the criteria set out below (which are drawn from the decisions on the framework programmes and the "rules for participation" decisions and grouped into five main blocks). In addition, they also provide an overall mark for each block of criteria (unless a proposal fails any thresholds – see below). Experts are required to provide comments to accompany each of their marks in a form suitable for providing feedback to the proposers. These comments must be consistent with any marks awarded.

The blocks of criteria to be applied by all programmes are as follows (EC, 2001):

Scientific/Technological quality and innovation
- The quality of the research proposed and its contribution to addressing the key scientific and technological issues for achieving the objectives of the programme and/or key action;
- The originality, degree of innovation and progress beyond the state of the art, taking into account the level of risk associated with the project;
- The adequacy of the chosen approach, methodology and work plan for achieving the scientific and technological objectives.

Community added value and contribution to EU policies
- The European dimension of the problem. The extent to which the project would contribute to solving problems at the European level and that the expected impact of carrying out the work at European level would be greater than the sum of the impacts of national projects;
- The European added value of the consortium - the need to establish a critical mass in human and financial terms and the combination of complementary expertise and resources available Europe-wide in different organisations;
- The project's contribution to the implementation or the evolution of one or more EU policies (including "horizontal" policies, such as towards SMEs, etc.) or addressing problems connected with standardisation and regulation.

Contribution to Community social objectives
- The contribution of the project to improving the quality of life and health and safety (including working conditions);

- The contribution of the project to improving employment prospects and the use and development of skills in Europe;
- The contribution of the project to preserving and/or enhancing the environment and the minimum use/conservation of natural resources.

<u>Economic development and S&T prospects</u>
- The possible contribution to growth, in particular the usefulness and range of applications and quality of the exploitation plans, including the credibility of the partners to carry out the exploitation activities for the RTD results arising from the proposed project and/or the wider economic impact of the project;
- The strategic impact of the proposed project and its potential to improve competitiveness and the development of applications markets for the partners and the users of the RTD results;
- The contribution to European technological progress and in particular the dissemination strategies for the expected results, choice of target groups, etc.

<u>Resources, Partnership and Management</u>
- The quality of the management and project approach proposed, in particular the appropriateness, clarity, consistency, efficiency and completeness of the proposed tasks, the scheduling arrangements (with milestones) and the management structure. In addition, the tools to be used for monitoring project progress, including the quality of specified indicators of impact and performance, and ensuring good communication within the project consortium;
- The quality of the partnership and involvement of users and/or other actors in the field when appropriate; in particular, the scientific/technical competence and expertise and the roles and functions within the consortium and the complementarity of the partners;
- The appropriateness of the resources - the manpower effort for each partner and task, the quality and/or level and/or type of manpower allocated, durables, consumables, travel and any other resources to be used. In addition, the resources not reflected in the budget (e.g. facilities to carry out the research and the expertise of key personnel). For this criterion, comments may be given rather than marks.

When examining proposals, experts will only apply these criteria, supplemented by any programme-specific criteria contained in the programme decision. These criteria as they apply to the particular programme may be described in greater detail in the programme-specific annex and the work programme. Experts are not be allowed to apply criteria which deviate from those set out and the programme-specific annex.

## 3.2. The Evaluation of the UNL Proposals

### 3.2.1. Evaluation Results of QANET (econtent)
<u>The opinion of the EC Experts.</u>
This proposal caused a good impression because, in opinion of the evaluators, showed a well documented overview of the subject, an extensive workplan, the consortium consisted of outstanding relevant experience, with a proposal well structured. However, it presented an R&D approach rather than a feasibility demonstration of econtent, as was required by the present call. For this reason the proposal fell outside the scope of the econtent call. The evaluators recommended the submission of the proposal to a more suitable EU programme.

<u>The opinion of the EU-UNL Consortium.</u>
We accepted the opinion of the expert evaluators.

<u>Actions taken by the UNL partners.</u>
We considered the evaluation of the proposal in an optimistic way. For this reason we decided to remake the proposal to be adapted to the next call of R&D IST Programme incorporating at least a company and a user (new QANET proposal).

### 3.2.2. Evaluation Results of QANET (RTD)
<u>The opinion of the EC Experts.</u>
This proposal failed to reach the threshold score on two of the criteria.
- *Scientific/technological quality and innovation.* In opinion of the EC experts the proposal did not provide a convincing integration of both aspects, quality assurance in multilingual applications and developing resources for the UNL platform. The detailed study of the state of the art in Machine Translation and NLP systems evaluation had several omissions and did not bring forward clear conclusions.
- *Economic development and S&T prospects.* A commercial partner was willing to take up the exploitation of the project results, but these were highly conditional on the success of the UNL approach. The viability of which was questionable. Likewise, the potential for commercial exploitation of Quality Assurance methodologies for Human Language Technologies is not demonstrated, and would have required a much deeper market analysis than provided in the proposal.

<u>The opinion of the QAnet Consortium.</u>
We proposed to develop a series of resources (corpuses and controlled dictionaries) to be produced during the project as the base of the testing of the UNL Quality System as well as to any other NLP. For this the results are not completely conditional on the success of the UNL approach. The conclusions derived from the state of the art, maybe not enough described, are that we need to produce instantiated quality models for human language technology applications (purpose of this project).

<u>Actions taken by the UNL partners.</u>
We decided to carry on presenting a new proposal.

### 3.2.3. Evaluation Results of LINGWEB
<u>The opinion of the EC Experts.</u>
This proposal was judged ineligible. The reasons were because:
(1)    *Non-existence of technology*. Multilingual website creation technology based on UNL does not exist while it should be a prerequisite for a trial project;

(2) *Excessive resources for development.* A high level of development and integration of new components consumes more than a half of resources;

(3) *Non-study of benefits.* The benefit of the approach chosen even in terms of productivity enhancement or the impact on the management of the lifecycle of multilingual documents is not at all addressed;

(4) *Market study insufficient.* The market perspectives are not convincing despite the intention of the coordinating partner to spin-off the results.

However, as the evaluators said in their report, the idea of using UNL as an interlingua for multilingual website creation is attractive and could be reconsidered in the framework of future generation multilingual web activities.

The opinion of the EU-UNL Consortium.

In this occasion, we felt very surprised by the way of the rejection of this proposal (ineligible) and the reasons that explained this decision. We answer to every one of the arguments previously described:

(1) *Non-existence of technology.* The UNL technology was officially presented in UNL annual meetings at Brussels and Geneva previously to this proposal with attendance of representatives of the EC.

(2) *Excessive resources for development.* There is not any new component in this proposal. According to the requirements of the Call for this proposal we proposed the adaptation of resources and components already existing. For this task we planned 6 man month of the total 75 mm. The rest of the tasks are assigned to produce methodologies.

(3) *Non-study of benefits.* There is a whole workpackage (wp5) that addresses specifically the definition of metrics and methods for evaluating the technical and business performances and its associated costs.

(4) *Market study insufficient.* This is more subjective argument. We proposed several exploitation strategies based on the creation of new Language Centers, the promotion for the creation of new companies from the results obtained of some Business Plan made by the coordinator of the proposal, the expansion of the use of the UNL technology without costs to institutions, segmentation of the market uses, professional training for individuals that are working in the field of translation, the creation of a commercial version of the system at low price for individuals, forming associations for the developing of specific components and/or joint exploitation of specific contents with commercial interest, and by last, through the expansion of number of languages as priority.

In summary, we did not understand and we did not agree with this qualification of proposal "ineligible". What kind of political attitude of the Programme responsible were taken?

Actions taken by the UNL partners.

We collected the last comment of the evaluators concerning to the idea of using UNL as interlingua for multilingual website as an attractive idea and, in spite of the strong hit we received, we kept on our efforts promoting a new proposal in the econtent Programme (EU-UNL proposal).

### 3.2.4. Evaluation Results of EU-UNL

The opinion of the EC Experts.

This proposal was considered as an interesting approach to the development of an interlingua for the automatic translation of text. However, UNL, in opinion of the experts was not sufficiently established and proven. It bears too many risks and should probably addressed under an R&D Programme. They had serious concerns about UNL, hand-encoding and its long term viability. The overall score was 2 (fair). In brief, the evaluators appreciate good technical knowledge in consortium, and they think that based on this partnership this could be a good research project.

The opinion of the EU-UNL Consortium.

The purpose of the project is to prove the cost-effective feasibility of the integration of a well-proven translation system to a content provider deployment strategy. This would provide a big amount of information in several languages that would serve as base of the knowledge needed. By this reason, one of the main objectives of the proposal included a Methodology for the implementation of the multilingual UNL system, including the testing phase. Effectively, the basic components of the UNL system have been already developed in the latest years. Now, they need to be tested in an integrated way and in real environments to fine-tune the interrelation of every language components such as was planned in the proposal.

Actions taken by the UNL partners.

We followed the recommendations of the evaluators and we promoted a new proposal in a RTD Programme (Multidoc proposal).

### 3.2.5. Evaluation Results of MULTIDOC

The opinion of the EC Experts.

This proposal only failed to reach the threshold score on one of the criteria.

*Scientific/technological quality and innovation.* In opinion of the EC experts the innovative value is low as this approach to the translation is not new. The scientific value of the proposal rests on the merits of the technology, UNL, that is being applied. But for these experts UNL is not a well-proven translation system since it is not backed up by solid independent evidence. Thus, this proposal fails to adduce any reference in the literature in support of UNL. By other side, according to their opinions, the proposal does not contain any suggestion how the enormous linguistic complexities of the encoding process can be taken one stage beyond machine aided / validated human effort which renders the approach economically unviable on any scale.

The overall conclusion is that the project intends to employ a technology of insufficiently proven feasibility and questionably economic viability.

The opinion of the Multidoc Consortium.

We propose to use the UNL technology for representing the informal contents of web pages following the XML-compliance of document mark-up languages. It

is true that is not innovative. The innovative aspect in this project is the design and implementation of a multilingual dissemination system that covers all the steps of the publication chain: encoding of contents, generation of multilingual count parts and delivery of language specific versions to readers. The user site and the sites of the technology providers engage in a communication process involving standardized UNL-enriched documents using Internet-based communication software components.

As regards the complexity of the encoding process, in this moment several partners of the consortium have prototyped tools addressing this need.

Actions taken by the UNL partners.

We decided to take a period of reflection. We have taken a lot of man-month dedicated to the elaboration of proposals for the IST Programme without success. This is not a problem of a proposal but the perception of the UNL technology by the EC responsible.

### 3.2.6. Comparative Analysis of Evaluation Results

We have gathered the scores provided by the evaluators for previous proposals (see table 2). Each column corresponds to the scores obtained by each criterion, with the following meaning:

- Criterion 1: Scientific/technological quality and innovation
- Criterion 2: Community added value and contribution of EC policies
- Criterion 3: Contribution to Community social objectives
- Criterion 4: Economic development and S&T prospects
- Criterion 5: Resources, partnership and management

| Proposal | Score Crit.1/3 | Score Crit.2/2 | Score Crit.3/0 | Score Crit.4/3 | Score Crit.5/2 |
|---|---|---|---|---|---|
| QANET | Non numerical score. Global score = 0 (rejected) | | | | |
| QANET | 2 | 3 | 2 | 2 | 2 |
| LINGWEB | Ineligible | | | | |
| EU-UNL | Non numerical score. Global score = 2 (fair) | | | | |
| MULTIDOC | 2 | 3 | 3 | 3 | 2 |

Table 2: A view of the proposals evaluation

We have included in the table, together with the identifier of criterion, the threshold score required by the EC. An analysis of these results for the previous evaluations shows that the main obstacle for the approval of the proposals refers to the use of the UNL as technology (criterion of the technological quality and innovation). Evaluators do not find attractive and feasible the inclusion of this technology. However, in these proposals, the other criteria are in general well considered, issues such as the adequacy for the problem that address and its contribution to community social objectives, the fitness to the EC policies or a consortium balanced.

## 4. Conclusions

The initiatives described in this paper show at least two issues by the side of the European UNL LC (proposers). Firstly, proposers have shown a persistent interest to involve the EC in the success and diffusion of a technology for Multilinguality derived from the United Nations. Second, proposers have dedicated lot of resources trying to follow the recommendations of evaluators. Specifically, the Spanish Language Center was the coordinator of the first three proposals and was an active contributor to the rest. We have commented the last five proposals, but there are another three presented with the same results: HEREIN-ML (Towards a methodology for making textual information about European heritage multilingual by using UNL as metadata), AQUITRA and COACH (Company Organization for Automation Customer Help Integrated into ebusiness).

The diagnosis has been done but there are no clear causes. We can speculate with some of them.

- From the viewpoint of the EC evaluators, UNL technology is not feasible maybe because the lack of successful experiments and by the scarce presence of UNL in scientific areas of the sector.
- From the viewpoint of the proposers, we regret the absence or extension of more explanations or advices for the future, maybe at the political and strategic level in order to avoid apparent contradictions in the specific evaluations obtained.

The only view of all this information placed together is speaking by itself. All the proposers have long and intense European projects experience during the last ten years at least. On the other hand, it is not understandable why the interest of the EC in this global initiative of the UN is so low or inexistent. Europe must not be out of this initiative and some of the technical evaluations seem to be made in the best case by persons with a low level of knowledge about this initiative. The reader of this paper can extract conclusions by him/herself according the proposals, and the persistent and sometimes contradictory evaluations of all of them.

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