

# Multilingual Physical Reasoning Dataset

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## Abstract

We introduce a manually constructed question-answer dataset covering the languages of Hindi, Kannada, Telugu, and Malayalam, designed in the Physical Interaction: Question Answering (PIQA) style. The dataset focuses on culturally grounded knowledge domains relevant to speakers of the language, covering examples across different categories, and ensures that the examples are culturally relevant to the given locale. Each example is a commonsense-style question (prompt) paired with two candidate solutions. Exactly one solution is correct, requiring reasoning about physics, culture, or everyday life. This dataset aims to support commonsense reasoning evaluation for various languages.

## 1 Dataset Construction

### 1.1 Hindi

#### 1.1.1 Categories

We created 10 categories, each with 10 questions:

1. **Food** (e.g., cooking, ingredients, preservation)
2. **Household Items** (e.g., utensils, appliances, furniture)
3. **Animals** (e.g., adaptations, behavior)
4. **Traditional Clothing** (e.g., fabric, symbolism, comfort)
5. **Festivals** (e.g., rituals, customs, symbolism)
6. **Transportation** (e.g., cars, trains, road conditions)
7. **Nature & Weather** (e.g., rainbows, mountains, fog)
8. **Sports** (e.g., kabaddi, cricket, tennis)

9. **Everyday Actions** (e.g., sneezing, writing, phone charging)

10. **Plants** (e.g., roots, leaves, seasonal changes)

#### 1.1.2 Principles of Construction

- **Manual authoring:** All examples were created by a native Hindi speaker.
- **Contrastive correctness:** Both options are plausible in surface form, but only one is physically or culturally correct.
- **Cultural grounding:** Scenarios include Indian cooking (roti, aachaar, chai), festivals (Diwali, Holi, Eid), traditional dress (kurta, saree), and sports (kabaddi, cricket).
- **Simplicity:** Prompts are short and colloquial, understandable to Hindi speakers of high school level and above.

### 1.2 Kannada

This dataset was constructed by curating Kannada-language prompts that describe everyday, practical scenarios (covering: kitchen safety & food prep; general household safety; gas, fire & festival safety; electrical safety & devices; tools, cutting & materials handling; construction, repair & home maintenance; ladders, lifting & ergonomics; driving, cycling & road conditions; first aid & personal care; child safety & household safeguards; gardening & plants; food handling & storage specifics; festive/cultural & household arts; weather & environment practices; materials science in daily life (thermal/mechanical); and miscellaneous household know-how). For each prompt, two short candidate responses were authored. Exactly one response expresses the correct, safe, or practically effective action, and the other is implausible, unsafe, or ineffective. A binary label marks which response is correct. All the 120 dataset points constructed for Kannada span the diverse household

contexts to encourage coverage of common-sense reasoning.

### 1.3 Telugu

#### 1.3.1 Categories.

We created 10 categories, each with 10 questions:

1. Traditional Telugu Cuisine & Food Preparation (e.g., dosa fermentation, pickle-making, cooking-related)
2. Agriculture & Farming Practices (e.g., rice paddy management, traditional plowing, seed storage)
3. Traditional Crafts & Textiles (e.g., handloom weaving, pottery firing, silk thread preparation)
4. Monsoon & Weather Management (e.g., traditional house design, water harvesting, seasonal clothing)
5. Traditional Construction & Architecture (e.g., mud house construction, tile roofing, courtyard ventilation)
6. Festival Preparations & Rituals (e.g., lamp preparation, garland decoration)
7. Traditional Medicine & Home Remedies (e.g., medicine preparation, turmeric paste, herbal treatments)
8. Traditional Transportation & Travel (e.g., bullock cart loading, boat stability, river crossing)
9. Household Management & Cleaning (e.g., clay pot water storage, natural pest control, traditional cleaning)
10. Traditional Games & Physical Activities (e.g., kite flying)

#### 1.3.2 Principles of Construction.

- **Manual authoring:** All examples were created by native Telugu speakers familiar with regional traditions.
- **Contrastive correctness:** Both options are plausible in surface form, but only one is physically or culturally correct within Telugu contexts.

- **Cultural grounding:** Scenarios include Telugu cooking techniques, agricultural practices (rice cultivation, cotton picking), traditional crafts (handloom weaving, pottery), and regional festivals with specific terminology in Telugu script.

- **Simplicity:** Prompts are accessible to Telugu speakers familiar with traditional practices, incorporating both common vocabulary and culturally specific terms while maintaining clarity across different Telugu dialects.

### 1.4 Malayalam

This dataset was constructed by curating Malayalam-language prompts that describe everyday, practical scenarios. These scenarios cover a wide range of common-sense topics, including cooking and food preparation, household chores and maintenance, basic physics and natural phenomena, gardening and nature, personal care and hygiene, tool usage and practical skills, vehicle and road safety, traditional and cultural practices, and troubleshooting everyday objects.

All 111 examples were created by a native Malayalam speaker, with a focus on scenarios that are culturally relevant to Kerala, such as traditional Kerala cooking, cultural festivals and other common household practices specific to the region. For each prompt, two short candidate solutions were authored. Prompts are short and use colloquial language, making them easily understandable to Malayalam speakers of a high school level and above. Both candidate solutions are plausible in surface form, but only one is physically, culturally, or practically correct.