

International Linguistics Challenge

Pre-Final Round

2025 Edition – Solutions

Problem Sheet with Solutions

Instructions

This document contains the problems along with basic solutions.

Problem A: Agreement in German and Urdu (4 Points)

In this problem set, we will look at agreement in two languages, German and Urdu, and see how it interacts with case.

Agreement is a syntactic relationship which requires two syntactic units to agree, that is, have at least one syntactic feature in common, as you have already discovered in the Qualification Round. Many of the world's languages require some type of agreement between the verb and one (or more) of its arguments (i.e. subject, object).

Case is a grammatical feature (like number or gender) used in some languages to distinguish the grammatical functions, such as subject/object, of noun phrases within a sentence. Case affects agreement in some languages.

In English, case is seen in the morphological form of pronouns. For example, the third person masculine pronoun has the form *he* in subject position, as in *He saw the man*, and the form *him* in object position, as in *The man saw him*. Using these forms in the opposite positions is ungrammatical, as in **Him saw the man* or **The man saw he*.

German is one such language where case marks the grammatical role of a noun (i.e. subject, object) and is seen in the morphological form of determiners in the noun phrase. Subjects have nominative case, while objects have accusative case. Case does not affect agreement in German.

Glossing Abbreviations:

ACC	ERG	F	M	N	NOM	PL	SG
accusative	ergative	feminine	masculine	neuter	nominative	plural	singular

(1) Der Mann koch-t die Orange.
The.M.SG.NOM man.M.SG cook-SG the.F.SG.ACC orange.F.SG
'The man cooked the orange.'

(2) Der Mann koch-t die Äpfel.
The.M.SG.NOM man.M.SG cook-SG the.M.PL.ACC apples.M.PL
'The man cooked the apples.'

(3) Die Frauen koch-en den Apfel.
The.F.PL.NOM women.F.PL cook-PL the.M.SG.ACC apple.M.SG
'The women cooked the apple.'

(4) Die Kinder koch-en die Orange.
The.N.PL.NOM children.N.PL cook-PL the.F.SG.ACC orange.F.SG
'The children cook the orange.'

(5) Das Kind koch-t die Eier.
The.N.SG.NOM child.N.SG cook-SG the.N.PL.ACC eggs.N.PL
'The child cooks the eggs.'

(6) Die Frau koch-t das Ei.
The.F.SG.NOM woman.F.SG cook-SG the.N.SG.ACC egg.N.SG
'The woman cooks the egg.'

(7) Die Männer koch-en die Orangen.
The.M.PL.NOM men.M.PL cook-PL the.F.PL.ACC oranges.F.PL
'The men cook the oranges.'

(a) Look at the German sentences in 1-7. Describe the verbal agreement system in German, using examples from the dataset to support your answer.

Urdu also has case. Subjects have either nominative or ergative case, while objects have either accusative or nominative case. Case does affect agreement in Urdu.

(8) aadmi seb pakaey-ga
man.M.SG.NOM apple.M.SG.NOM cook-will.M.SG
'The man will cook the apple.'

(9) aadmi-ne mosambi pakaii
man.M.SG-ERG orange.F.SG.NOM cooked.F.SG
'The man cooked the orange.'

(10) auratein seb pakaeyn-gi
women.F.PL.NOM apple.M.SG.NOM cook-will.F.PL
'The women will cook the apple.'

(11) aurat-ne mosambi-ko pakaya
woman.F.SG-ERG orange.F.SG-ACC cooked.M.SG
'The woman cooked the orange.'

(12) bacha mosambiyan pakaey-ga
child.M.SG.NOM orange.F.PL.NOM cook-will.M.SG
'The child will cook the oranges.'

(13) bachon-ne mosambiyon-ko pakaya
children.M.PL-ERG orange.F.SG-ACC cooked.M.SG
'The children cooked the oranges.'

(14) aadmi-ne anday pakaey
man.M.SG-ERG eggs.M.PL.NOM cooked.M.PL
'The man cooked the eggs.'

(b) Look at the Urdu sentences in 8-14. Describe the verbal agreement pattern in Urdu. (Note: Do not describe the verbal morphology, only what the verb agrees with.)

SOLUTION

(a) Verbs show number agreement with the subject in German. In (1), the subject and object are both singular. In (2), the subject is singular but the object is now plural. The form of the verb remains the same in (1) and (2), showing agreement is with the subject and not the object. Comparing (1) and (6), we see that the verb agrees in number but not in gender. (1) has a masculine singular subject, while (6) has a feminine singular subject. The form of the verb is the same in both (1) and (6), showing there is no gender agreement.

Verbs with singular agreement end in *-t*, as in examples (1), (2), (5) and (6), while verbs with plural agreement end in *-en*, as in examples (3), (4) and (7).

(b) Urdu has both subject and object agreement, depending on case. Moreover, the verb shows both number and gender agreement, unlike German, which only shows number agreement.

When there is a nominative subject, the verb agrees with the subject. This is seen in examples (8), (10) and (12). In (10), the subject is feminine plural and the object is masculine singular. Both the subject and object have nominative case. The verb is feminine plural, showing number and gender agreement with the subject.

When the subject is not nominative but the object is, then the verb agrees with the object. This is seen in examples (9) and (14). In (9), the subject has ergative case and is masculine singular. The object has nominative case and is feminine singular. The verb is feminine singular, showing number and gender agreement with the object.

When neither the subject nor object is nominative, the verb shows default agreement which is masculine singular. This is seen in (11) and (13). In (11), the ergative subject and accusative object are both feminine singular. In (13), the ergative subject is masculine plural and the accusative object is feminine singular. In both examples, the verb is masculine singular and does not agree with either the subject or the object.

Problem B – Phonology of English Past Tense (6 Points)

In this problem set, we will look at the phonology of the English past tense.

The pronunciation of a given phoneme can vary considerably depending on the environment it occurs in. In other words, the pronunciation of any given phoneme depends on the sounds that come before and after it in each context.

Many linguists believe that speakers store one phonological form in the mental lexicon, along with phonological rules which determine how the morpheme will be pronounced in a given environment. This is considered to be more efficient for memory than, for example, storing multiple possible pronunciations as separate lexical entries with duplicate meanings.

Here is a list of English verbs and their phonological forms.

	Present		**Past**	
1.	beg	[bɛg]	begged	[bɛgd]
2.	wait	[weɪt]	waited	[weɪtɪd]
3.	walk	[wɔk]	walked	[wɔkt]
4.	clean	[klin]	cleaned	[klind]
5.	tie	[taɪ]	tied	[taɪd]
6.	laugh	[lɑːf]	laughed	[lɑːft]
7.	need	[nid]	needed	[nidɪd]
8.	play	[pleɪ]	played	[pleɪd]
9.	add	[æd]	added	[ædɪd]
10.	rub	[rʌb]	rubbed	[rʌbd]
11.	end	[ɛnd]	ended	[ɛndɪd]
12.	hope	[hoʊp]	hoped	[hoʊpt]
13.	buzz	[bʌz]	buzzed	[bʌzd]
14.	scream	[skrim]	screamed	[skrimd]
15.	kiss	[kɪs]	kissed	[kɪst]

(a) Look at the alternations in 1–12. List all phonological alternations of the past tense marker.

(b) Describe the distribution of each phonological alternation of the past tense marker. Use the IPA chart below to define the environments in terms of phonetic features.

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Palatal	Velar	Glottal
Plosive	p b			t d			k g	ʔ
Nasal	m			n			ŋ	
Affricate					tʃ dʒ			
Fricative		f v	θ ð	s z	ʃ ʒ			h
Approximant	w			ɹ		j		
Lateral Approximant				l				

Hint: List all sounds that appear before each alternation of the past tense marker. Then find the common phonetic feature between those sounds on the IPA chart to define an environment.

Here are some more English verbs and their phonological forms.

	Present		**Past**	
16.	keep	[kiːp]	kept	[kɛpt]
17.	feel	[fiːl]	felt	[fɛlt]
18.	hear	[hɪər]	heard	[hɜrd]
19.	lose	[luːz]	lost	[lɔst]
20.	leave	[liːv]	left	[lɛft]
21.	mean	[miːn]	meant	[mɛnt]
22.	say	[seɪ]	said	[sɛd]
23.	dream	[driːm]	dreamt	[drɛmt]
24.	choose	[tʃuːz]	chose	[tʃeʊz]

(c) Do the verbs in 16–24 follow the same phonological rules as the verbs in 1–15? Explain your answer.

SOLUTION

(a) There are three phonological alternations of the English past tense morpheme *-ed*: [d], [t] and [ɪd].

(b) The past tense morpheme *-ed* appears as [ɪd] after alveolar consonants. This is seen in (2) ‘waited’, (7) ‘needed’, (9) ‘added’ and (11) ‘ended’. [t] and [d] are both alveolar consonants and *-ed* surfaces as [ɪd] after them.

The alternation [t] is found after all voiceless consonants except alveolars. This is seen in (3) ‘walked’, (6) ‘laughed’, (12) ‘hoped’ and (15) ‘kissed’. [k], [f], [p] and [s] are all voiceless consonants, and *-ed* surfaces as [t] after each of these consonants. Alveolars are excluded from this rule as illustrated by (2). ‘Wait’ ends in [t], which is a voiceless alveolar; *-ed* in ‘waited’ takes the form [ɪd], not [t].

Finally, *-ed* appears as [d] in after all other sounds, including voiced non-

alveolar consonants, as in (1), (4), (10), (13) and (14), and vowels, as in (5) and (8).

(c) No, the verbs in (16)–(24) do not follow the same rules as the ones in (1)–(15). The rules for (1)–(15) predict that *-ed* in the past tense forms of (17), (19), (20), (21), (23) and (24) should surface as [d] but it does not. For example, (19) 'lose' ends in a voiced non-alveolar consonant [z], similar to (13) 'buzz'. Yet, the past tense form of (19) ends in [t], while the past tense form of (13) ends in [d].

The verbs in (16)–(24) do not follow any rules which determine the form of *-ed* in the past tense. While most of the past tense forms end in [t], some also end in [d], as in (18) and (22), while others have no form of *-ed* at all, like (24).

A common pattern seen in (16)–(24) is vowel shortening. The present tense form has a long vowel (e.g. [iː] in 16), which becomes short in the past tense (e.g. [ɛ] in 16). However, this too is not predictable, as the same vowel in the present tense can have different forms in the past tense. For example, [uː] in (19) 'lose' becomes [ɔ] in 'lost', but [uː] in (24) 'choose' becomes [eʊ] in 'chose', even though both verbs end in the same consonant [z].

Hence, we can conclude that (16)–(24) are irregular verbs and do not follow the same rules as (1)–(15).

Problem C – Research Paper (8 Points)

Use the content of the article to work on the problems below: ”English Speakers Can Infer Pokémon Types Based on Sound Symbolism” by Kawahara Shigeto, Godoy Mahayana C & Kumagai Gakuji (2021). Frontiers in Psychology.

(a) Define using your own words *thesis of arbitrariness* and *sound symbolism*.

(b) Give two advantages of studying Pokémonastics according to Kawahara et al.

(c) Which three sound symbolic connections did Kawahara et al test?

(d) What was the key difference in the experimental design of Experiments 1 and 2?

(e) Kawahara et al did not observe a robust effect of the [p]=fairy connection in Experiment 1. What are the three possible explanations they give for this?

(f) What did Kawahara et al’s examination of the real English names of Pokémon show?

(g) Consider the types of semantic properties which other works have shown to be signaled via sound symbolism: size, shape, colour, brightness, taste, weight and strength. How do these compare to Pokémon type? What implications, if any, are there for Kawahara et al’s study?

SOLUTION

(a) The thesis of arbitrariness states that the relationships between sounds and meanings are random and entirely by chance. Sound symbolism, on the other hand, describes systematic sound-meaning associations, in other words, not random and governed by logic.

(b) The first advantage of studying Pokémonastics according to Kawahara et al is that it allows quantitative assessment of sound symbolism, as Pokémon characters all have quantitative attributes which may be associated with their names.

A second advantage is that the set of attributes associated with Pokémon names is fixed across languages, which readily allows for cross-linguistic comparison.

(c) Sibilants are associated with flying type Pokémon, voiced obstruents are

associated with dark type Pokémon, and [p] is associated with fairy type Pokémon.

(d) Stimuli were presented in isolation in Experiment 1 and in pairs in Experiment 2.

(e) The first possible explanation given by Kawahara et al is that the effect may not exist for English speakers, hence there were no robust effects in Experiment 1. A second possibility is that it is more challenging for participants to make a judgement when stimuli are presented in isolation than in pairs. Finally, Kawahara et al speculated that participants' responses may have been influenced by other segments in the stimuli and therefore, confounded the results.

(f) The real English Pokémon names do not show sound symbolism. This may be because Pokémon names were created in Japanese then translated into English. The translations sometimes used real words, which impose semantic restrictions on any potential sound-meaning symbolism.

(g) Size, shape, colour etc. are innate properties which exist in the natural world and have sensory input. Pokémon type, on the other hand, is an artificial category based on a fictional universe, and is an abstract concept. While some Pokémon types, such as fire and water, are more intuitive, two of the three chosen by Kawahara et al, dark and fairy, are much less so. This raises questions as to what extent Kawahara et al's results can be extended to natural concepts and human language as a whole. On the one hand, if replicated with more robust results and across real languages, Pokémonastics results may show the extent to which sound symbolism can exist in language. On the other hand, if the results are not replicated with robust results, we may learn the limitations within which sound symbolism exists in human language.