

A Appendices

A.1 MetaLWOz — dialogue examples

Domain: Ski

User Task: You want to know if there are good ski hills an hour's drive from your current location.

Bot Task: Tell the user that there are no ski hills in their immediate location.

Bot Hello how may I help you?

User Is there any good ski hills an hour's drive from my current location?

Bot I'm sorry to inform you that there are no ski hills in your immediate location

User Can you help me find the nearest?

Bot Absolutely! It looks like you're about 3 hours away from Bear Mountain. That seems to be the closest.

User Hmm.. sounds good

Bot Alright! I can help you get your lift tickets now!When will you be going?

User Awesome! please get me a ticket for 10pax

Bot You've got it. Anything else I can help you with?

User None. Thanks again!

Bot No problem!

Domain: Game rules

User Task: Ask how to win at the text adventure Zork. If the Bot cannot help you, ask them what games it can help you with.

Bot Task: Tell the user that you are programmed to help them play games, not win them. If the user starts talking about other games, go along with them and try to help.

Bot Hello how may I help you?

User I want to know how I can win playing Zork?

Bot I am programmed to help you play games, not win them

User What games can you help me with?

Bot Any game

User Can you specify a certain game?

Bot Zork

User What are the rules of Zork?

Bot You have to follow through a cave adventure

User What is the ending of the game?

Bot The user comes out of the cave

Domain: Music suggestion

User Task: Tell the bot that you like a certain genre of music, but don't prompt it to give you suggestions

Bot Task: Provide suggestions, even if the user

doesn't ask for them (or tells you they don't need any)

Bot Hello how may I help you?

User Hello. I like classic rock music.

Bot Dream on Aerosmith

User No, I'm not a huge fan of that song. Is there anything else available?

Bot Sweet Home Alabama

User Well, I do like Lynyrd Skynyrd, but that song is so cliché. Do you have anything else by the same band?

Bot Free bird

User Yes, that is the perfect song for how I am feeling right now!

Bot Great, Is there anything else?

User No, but I really appreciate your assistance. Thank you so much!

Bot You're welcome

Domain: Information retrieval

User Task: Describe a movie where these guys have to climb a mountain and then throw a thing into the mountain and ask the bot if they know what the movie is called.

Bot Task: Ask the user to elaborate as much as possible about the movie they are asking about, and then suggest they're thinking of Lord of the Rings.

Bot Hello how may I help you?

User I'm trying to remember this movie. Can you help?

Bot I would be happy to help. Can you tell me what it is about?

User In it these guys have to climb up a mountain. Then they throw something into the mountain.

Bot Do you know what genre the movie is, such as comedy, horror, sci-fi, or fantasy?

User Not sure about that.

Bot Do you any of the actor or character names in the movie?

User No... All I can remember is the stuff about the mountain.

Bot Is it a new movie, or an older movie?

User I don't know.

Bot It sounds like the movie you are talking about could be Lord of the Rings. Does that sound right?

User It could be that. Thanks for the help.

Domain	#Dialogues	Domain	#Dialogues
UPDATE_CALENDAR	1991	GUINNESS_CHECK	1886
ALARM_SET	1681	SCAM_LOOKUP	1658
PLAY_TIMES	1601	GAME_RULES	1590
CONTACT_MANAGER	1483	LIBRARY_REQUEST	1339
INSURANCE	1299	HOME_BOT	1210
HOW_TO_BASIC	1086	CITY_INFO	965
TIME_ZONE	951	TOURISM	935
SHOPPING	903	BUS_SCHEDULE_BOT	898
CHECK_STATUS	784	WHAT_IS_IT	776
STORE_DETAILS	737	APPOINTMENT_REMINDER	668
PRESENT_IDEAS	664	GEOGRAPHY	653
SKI_BOT	607	MOVIE_LISTINGS	607
UPDATE_CONTACT	581	ORDER_PIZZA	577
EDIT_PLAYLIST	574	SPORTS_INFO	561
BOOKING_FLIGHT	555	WEATHER_CHECK	551
EVENT_RESERVE	539	RESTAURANT_PICKER	535
LOOK_UP_INFO	533	AUTO_SORT	514
QUOTE_OF_THE_DAY_BOT	513	WEDDING_PLANNER	510
MAKE_RESTAURANT_RESERVATIONS	510	AGREEMENT_BOT	507
NAME_SUGGESTER	499	APARTMENT_FINDER	499
HOTEL_RESERVE	497	PHONE_PLAN_BOT	496
DECIDER_BOT	487	VACATION_IDEAS	486
PHONE_SETTINGS	473	POLICY_BOT	447
PROMPT_GENERATOR	446	MUSIC_SUGGESTER	445
PET_ADVICE	426	BANK_BOT	367
CATALOGUE_BOT	288		

Table 6: MetaLWOz dataset domains

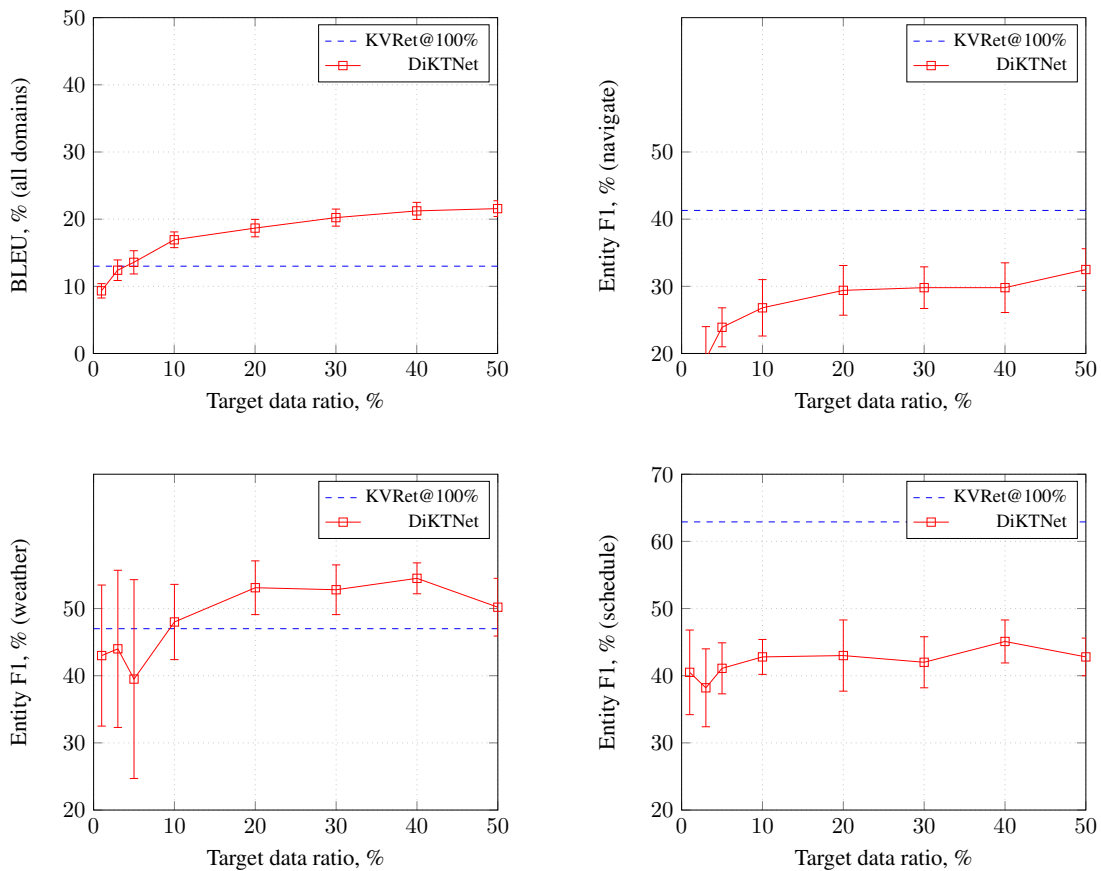


Figure 3: DiKNet performance with extended amounts of target data used for training