Analyzing Chat Logs in Online Games for Tutorial Improvement

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CHI PLAY, London, October 5-7, 2015

Introduction

The game we study is a browser-based Massive Multiplayer Strategy/RPG named **Castlot**.

The game mechanics include numerous elements which might make the whole game process difficult to learn. For example one of the PvP elements is an assault of opponent's' castle which is not revealed in the inroductory tutorial thereby confuses players.

Process of sharing knowledge within the group is social learning. In MMO games asking for advice in the chat from other players sometimes is the easiest way to get information. This social learning process complements in-game tutorials.

We present a method of extracting information from chat logs to get insights into process of players' adaptation via social learning and inform tutorial improvement.

Aims:

- Analysis of help-seeking patterns in online games chat logs

Data:

- Chat logs (9 months, 2209464 messages from 6545 users)
- Game terms vocabulary on online game forum compiled by players
- Developers documentation

Methods:

- Twitter-LDA (modification of Latent Dirichlet Allocation) for detailed textual analysis of short-length messages
- GLR parsing algorithm for extraction of communication patterns which consist specific grammar rules
- N-gram analysis

Patterns over time: Communication patterns detected with GLR parsing algorithm

General game terms. Discussion of thing which are basis of the game: castle, hero, assaults, map. Example: *I occupied only free castles.*

Indignation. Expression of negative emotions about game and players: what the hell, what the crap. Example: *What the hell are you attacking? Do you want war?*

Expendables. Questions about action with consumables. Example: *How to set a goblin?*

Locations. Calls into group for dungeon raid and discussion of dropped items. Example: *Stone or Forest! Somebody is here? Avalon or Thicket?*

Resources. Discussion of cost some buildings and requests to give some resource: gold,stone,metal, wood. Example: *People, give me stone somebody)) 1k remained ((*

Knight names. Messages with mentions of non-playable characters that have their own characteristics and special bonuses. Example: *I have Lamorack as intelegence-man.*

Cards. Items which give bonuses to characters. Players discuss what cards and card combinations give better bonuses. Example: *Have you conducted Blow of Fury?*
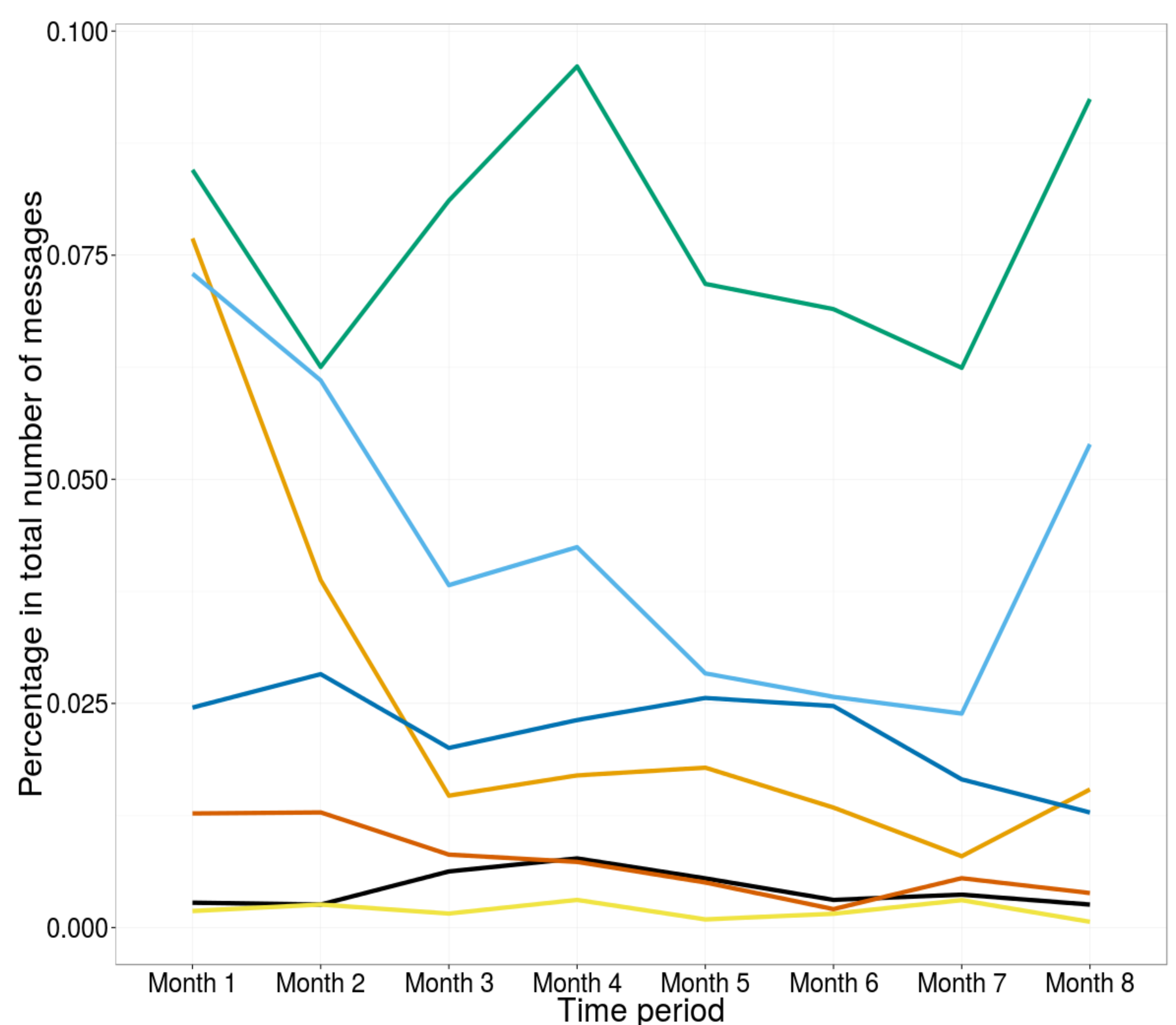
General game terms

In the first month of servers lifecycle, most of messages of general game-related lexicon are related to senate (main building in players castle), castle, or map (e.g. "where is the map, give me a cue", "where is senat"). Also, newcomers often use vocabulary that is common for MMORPG games. In the mature stages of servers lifecycle, such messages vanished - there are remained messages about assaults with bi-grams: *who assault, assault to go, what assault.* This can be explained throughout the breaking of newcomers inflow and changes in gaming activities: experienced players are more interested in PVP and PVE battles.

Expendables

Questions on expendables do not change general objects of mention with time. However, there are differences in contents of messages. In the beginning players ask how to use expendable items, e.g. "goblin": *(how to) set goblin or (how to) use goblin.* In mature stages of server lifecycle we find that players arrange mutual exchange: *goblin exchange, who (can send) goblin.* In case of this particulat item, it can be suggested that players do collective exchanges of goblins to get awards without enmity, which can cause war between leagues.

Conclusion

Chat log analysis can inform contextualization of tutorials supporting players' learning at different stages of the game and in different settings. Techniques used in our analysis could be employed to investigate players' concerns on a daily basis to automatically detect and inform community managers reaction to emerging issues. On a higher level observed dynamics of game-related questions and messages could be used to monitor game balance and other types of game-design issues.