Towards Enabling Synchronous Digital Creative Collaboration:
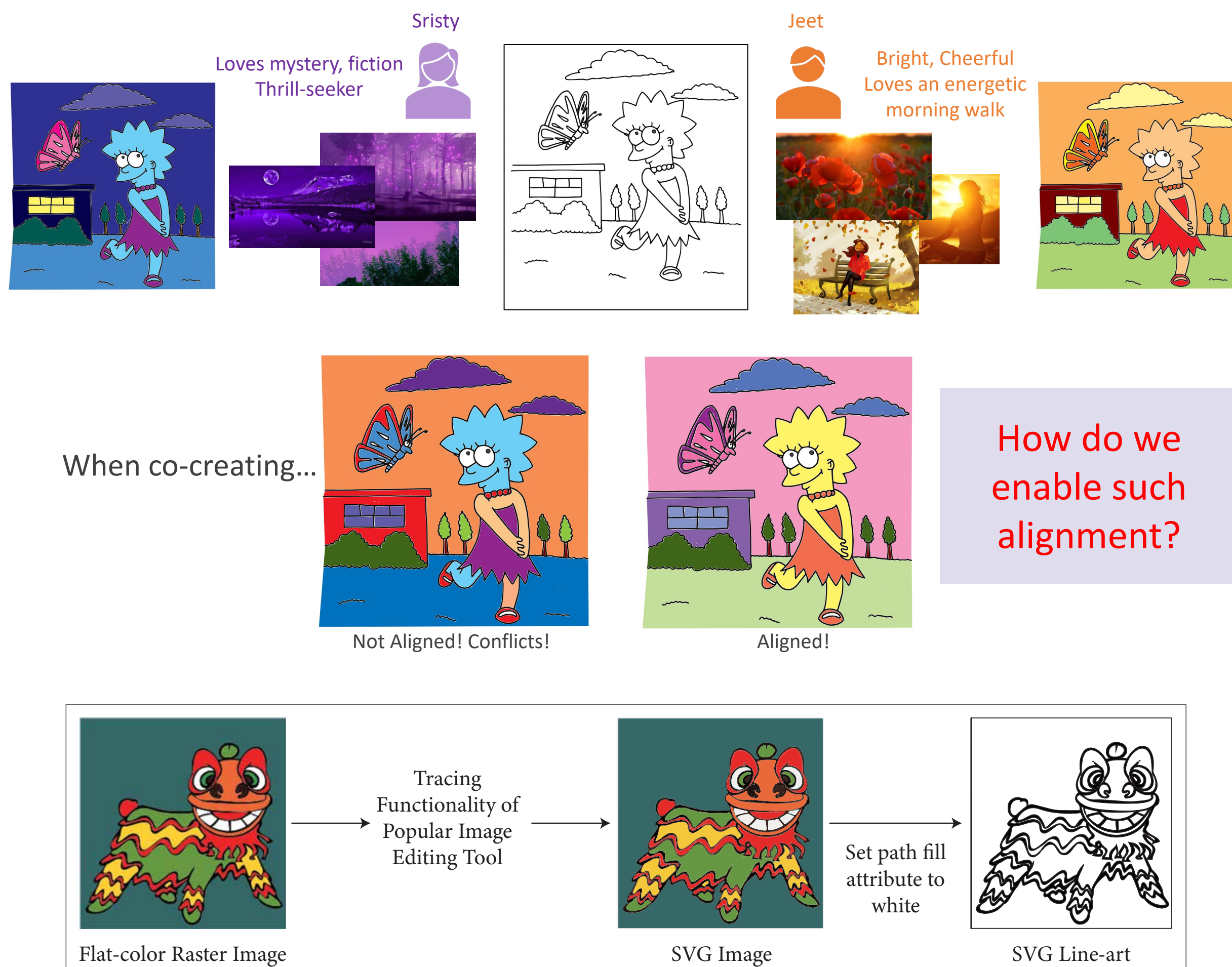## *Codifying Conflicts in Co-Coloring*

Suryateja BV[1], Jeet Patel[2], Atharva Naik[3], Yash Parag Butala[3], Sristy Sharma[2], Niyati Chhaya[1]

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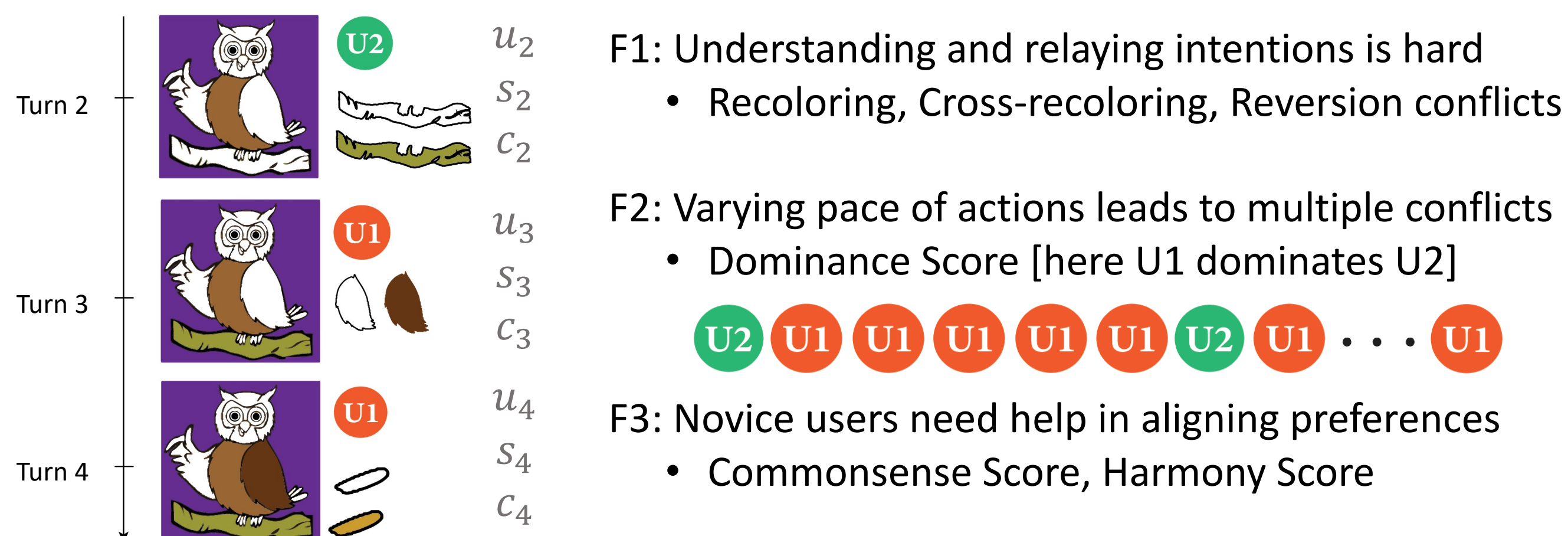## 1 Flat Line-art Co-colorization: Task and Dataset Preparation

Sristy
Loves mystery, fiction
Thrill-seeker

Jeet
Bright, Cheerful
Loves an energetic
morning walk

When co-creating…

Not Aligned! Conflicts!

Aligned!

How do we enable such alignment?

Flat-color Raster Image → Tracing Functionality of Popular Image Editing Tool → SVG Image → Set path fill attribute to white → SVG Line-art

2 User Interface Design for Synchronous Colorization

CollabColor — Sync is live! — Logout

Canvas with Line-art

Current Color

Color Palette

Inspiration Images of User S1

Most-recent colors picked by both users

Screen of User S1

Done / Next — Pick Color

CollabColor — Sync is live! — Logout

Current Color

Inspiration Images of User S2

Button to go to next Line-art

Button to pick colors from canvas

Screen of User S2

Done / Next — Pick Color

Scan the QR Code to view a demonstration of our interface

3 Formative User Study and Design Goals for a potential *Intervention System*

Turn 2
u_2
s_2
c_2

Turn 3
u_3
s_3
c_3

Turn 4
u_4
s_4
c_4

F1: Understanding and relaying intentions is hard
- Recoloring, Cross-recoloring, Reversion conflicts

F2: Varying pace of actions leads to multiple conflicts
- Dominance Score [here U1 dominates U2]

U2 U1 U1 U1 U1 U1 U2 U1 · · · U1

F3: Novice users need help in aligning preferences
- Commonsense Score, Harmony Score

- **G1:** Facilitate communication of intentions via canvas and aid in resolution of conflicts

- **G2:** Provide feedback on collaborative strength and overall quality of colored line-art

- **G3:** Provide assistive tools to color harmoniously

- **G4:** Interventions should be non-obtrusive