



Guide to Emotion AI API 5 Output

Understanding Beyond Verbal's engine emotional definitions

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The description of the model given in this manual is based on the specifications at the time of writing. This manual covers all existing functions for the model described.

CHAPTER 1 INTRODUCTION

The Emotion AI engine (API V5) of Beyond Verbal takes raw voice input and analyzes it for mood and emotional state.

- The Emotion AI engine (API V5) measures the speaker's current emotional state. It requires at least 10 seconds of authentic speech to render the initial emotional analysis. All subsequent analyses are rendered every 5 seconds. For more information, please refer to our recording guidelines.
- The outputs are distributed into several emotional parameters, as listed below within this document.

CHAPTER 2 EMOTION PARAMETERS

The Emotion AI engine measures the speaker's emotional state during the analyzed voice section into three separate emotion parameters: Temper, Valence, and Arousal.

2.1 TEMPER

Temper reflects the speaker's emotional state. It includes three main categories: depressive, embracive and aggressive.

The Temper output is divided into two distinct measurements:

- Value of Temper is represented by a number on a continuous scale ranging from 1 to 100.
- Group of Temper, which consist of three distinct groups: Low, Med, High.

2.1.1 High Temper

High temper occurs when the speaker experiences and expresses aggressive emotions oriented outwards, such as active resistance, anger, hatred, hostility, aggressiveness, forceful commandment and/or arrogance.

2.1.2 Medium Temper

Medium temper occurs when the speaker experiences and expresses the following two types of emotions:

- Embracive "positive" emotions, communicated in a warm and friendly manner, such as empathy, acceptance, friendliness, closeness, kindness, affection, love, calmness, and motivation.
- Self-controlled "neutral" emotions communicated in a "matter-of-fact" intonation.

2.1.3 Low Temper

Low temper occurs when the speaker experiences and expresses negative emotions in an inhibited fashion, such as sadness, pain, suffering, insult, inferiority, self-blame, self-criticism, regret, fear, anxiety and concern (can also be interpreted as fatigued). It is as though the speaker is waning, growing smaller, or pulling back.

2.2 VALENCE

Valence refers to the level of negativity or positivity. It ranges from negative emotional state to positive emotional state.

The Valence output is divided into two distinct measurements:

- Value of Valence is represented by a number on a continuous scale ranging from 1 to 100.
- Group of Valence, which consists of three distinct groups: Negative, Neutral and Positive.

2.2.1 Negative Valence

The speaker's voice conveys emotional pain and weakness or aggressive and antagonistic emotions.

2.2.2 Neutral Valence

The speaker's voice conveys no preference and comes across as self-control or neutral.

2.2.3 Positive Valence

The speaker's voice conveys positive emotions, such as happiness, warmth, enthusiasm or calmness.

2.3 AROUSAL

Arousal is an output that measures the speaker's level of energy, ranging from tranquility, boredom or sleepiness to alertness or excitement. Arousal can also correspond to similar concepts such as involvement and stimulation.

The Arousal output is divided into two distinct measurements:

- Value of Arousal is represented by a number on a continuous scale ranging from 1 to 100.
- Group of Arousal, which consists of three distinct groups: Low, Neutral and High.

2.3.1 Low Arousal

The speaker's voice conveys low levels of alertness and can be registered in cases of sadness, comfort, relief, or sleepiness.

2.3.2 Neutral Arousal

The speaker's voice conveys a medium level of alertness and can be registered in cases of normal conduct, indifference, or self-control.

2.3.3 High Arousal

The speaker's voice conveys a high level of alertness such as excitement, surprise, passionate communication, extreme happiness, or anger.

CHAPTER 3 EMOTION GROUPS

Emotion groups are an indicator of the speaker's emotional state during the analyzed voice section.

API V5 provides the following Emotion Groups (total of 5 groups), together with the emotions that exist in each group:

- Sadness/Uncertainty/Boredom
- Anger/Dislike/Stress
- Neutral
- Happiness/Enthusiasm/Friendliness
- Warmth/Calmness

3.1 GROUP 1: SADNESS/UNCERTAINTY/BOREDOM

Group 1 is a group of negative and unpleasant emotions oriented inwards. These emotions involve inhibition, weakness and withdrawal. Accordingly, they are usually characterized by low arousal, though in some cases the arousal can be neutral. There are 3 emotions in this group:

- **Sadness:** A negative emotion that involves emotional pain. It is associated with feelings of disadvantage, despair, helplessness and sorrow.
- **Uncertainty:** An unpleasant feeling of indecisiveness, hesitation or doubt.
- **Boredom:** An unpleasant feeling of being weary through lack of interest.

3.2 GROUP 2: ANGER/DISLIKE/STRESS

Group 2 is a group of negative emotions oriented outwards. In contrast to sadness, uncertainty and boredom, which involve inhibition and withdrawal, these negative emotions of anger, dislike, and stress involve active approach. Accordingly, they are usually characterized by high arousal, though in some cases the arousal can be neutral. There are 3 emotions in this group:

- **Anger:** A negative emotion characterized by antagonism, enmity, or unfriendliness that can be directed against individuals, entities, objects, or ideas.
- **Dislike:** A negative emotion characterized by aversion, distrust antipathy, or disgust.
- **Stress:** An emotionally disruptive or upsetting condition, usually characterized by irritability, which occurs in response to adverse external influences.

3.3 GROUP 3: NEUTRAL

Group 3 is a group characterized by neutral emotional states (i.e. practicality or a need to control emotions, behavior and desires in order to obtain some kind of reward, or actions to avoid some kind of punishment). The arousal state of these emotions is neutral.

3.4 GROUP 4: HAPPINESS/ENTHUSIASM/FRIENDLINESS

Group 4 is a group of positive emotions characterized by high arousal. Some of the emotions are related to cheerfulness and wellbeing, some of them are related to feelings of eagerness or desire and some of them are related to an inclination to approve, help or support another person. There are 3 emotions in this group:

- **Happiness:** A positive emotion that is related to pleasurable sensations, enjoyment, and joyfulness.
- **Enthusiasm:** A positive emotion, which involves motivation, passion, or excitement for something (e.g., an object, activity, concept or person) or about doing something.
- **Friendliness:** A positive feeling of kindly interest and goodwill towards another person, which involves an inclination to approve, help or support the other.

3.5 GROUP 5: WARMTH/CALMNESS

Group 5 is a group of positive emotions that are usually characterized by low arousal. The emotions in this group involve pleasant feelings such as affection and fondness or relaxation and peacefulness. This group includes 2 emotions:

- **Warmth:** A positive feeling of being intimate and attached. It involves generosity, sensitivity, kindness, acceptance, and fondness.
- **Calmness:** A peaceful, relaxed, and quiet emotional state, free from disturbance.