ENGLISH PHONOLOGICAL RULES APPLIED IN "THE MARTIAN" FILM

THESIS

By:

Khulafaur Rosyidin

12320088

ENGLISH LANGUAGE AND LETTERS DEPARTMENT

FACULTY OF HUMANITIES

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A thesis submitted to the Faculty of Humanities in partial fulfillment of the requirements for the degree of *Sarjana Sastra*

By:
Khulafaur Rosyidin
12320088

Advisor:
Deny Efita Nur Rakhmawati, M.Pd.

ENGLISH LANGUAGE AND LETTERS DEPARTMENT
FACULTY OF HUMANITIES
MAULANA MALIK IBRAHIM STATE ISLAMIC UNIVERSITY OF MALANG
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APPROVAL SHEET

This is to certify that Khulafaur Rosyidin's thesis entitled "English phonological rules applied in "The Martian" film" has been approved by the thesis Advisor for further approval by the Board of Examiners.

Malang, June 21, 2016

Approved by
Advisor,

Deny Efita Nur Rakhmawati, M.Pd.
NIP 19850530 200912 2 006

Acknowledged by
Head of English Language and Letters
Department,

Dr. Syamsuddin, M.Hum.
NIP 19691122 200604 1 001

Dean of Faculty of Humanities,

Dr. Hj. Isti'adah, M.A.
NIP 19670313 199203 2 002

LEGITIMATION SHEET

This is to certify that Khulafaur Rosyidin's thesis entitled "English Phonological Rules Applied in "The Martian" Film" has been approved by the board examiners as one of the requirements for the degree of *Sarjana Sastra (S.S)* in English Language and Letters Department.

Board Examiners	Signatures
1. Agus Eko Cahyono, M.Pd. (Main Examiner) NIP 19820811 201101 1 008	1.
2. Dr. H. Langgeng Budianto, M.Pd. (Chair Person) NIP 19711014 200312 1 001	2.
3. Deny Efita Nur Rakhmawati, M.Pd. (Advisor) NIP 19850530 200912 2 006	3.

Approved by

Dean of Faculty of Humanities

Dr. Hj. Isti'adah, MA

NIP 19670313 199203 2 002

STATEMENT OF ACADEMIC INTEGRITY

I, Khulafaur Rosyidin, as the writer of the thesis entitled *"English Phonological Rules Applied in "The Martian" Film"* pronounce that this thesis is originally my work. It does not include any works which have been previously submitted at any higher education institutions, and to the best of my knowledge, this thesis does not include any works or opinions that have been previously written or published by any authors, except for those which are referenced in the text and listed in the bibliography. Thereby, I am highly responsible to the novelty of my thesis.

Malang, June 22, 2016

Khulafaur Rosyidin
NIM 12320088

MOTTO

"Things work out best for those who make the best of how things work out."

(John Wooden)

"Try not to become a person of success, but rather than try to become a person of value."

(Albert Einstein)

DEDICATION

This thesis is proudly dedicated to those who are willing to learn English, especially in phonological aspects. This is for those who regard English pronunciation as an important thing to notice in learning the language.

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The Researcher

ABSTRACT

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Keywords: phonological rules, pronunciation, speech, phoneme, "The Martian" film.

This study examines English phonological rules applied by the characters of "The Martian" film. The term phonological rules, or called phonological processes refer to Lass's (1984) theory. He classified them into a large number of types. Nonetheless, this study focuses on four types only, that is, assimilation, dissimilation, deletion, and insertion. "The Martian", a Hollywood film, is taken as the subject of the study since the phenomena of English phonological rules highly occur in the characters' speech. This study is carried out to address two research questions: what types of phonological rules are applied in the film and to what extent the characters of the film apply phonological rules in their speech.

This study is employing descriptive qualitative inquiry aimed at describing the case of phonological rules applied in "The Martian" film. Besides Lass's (1984) theory, in describing this case, the other experts' ideas are utilized as well, including Yule's (2010) voicing, place of articulation and manner of articulation, Hayes's (2009) feature matrix, Roach's (1991) vowels production, and so forth.

The results of this study suggest that the phenomena of English phonological rules are highly found in three of the four types proposed with the highest number of occurrence arises in deletion. In assimilation, a phoneme can undergo one feature alteration, e.g. labialization of stop consonant /t/, devoicing of alveolar consonant /d/, velarization of stop consonant /d/, and so forth. It can also undergo two features alteration, e.g. dentalization and fricatization of stop alveolar consonant /t/ and palatalization of the mutual consonants /t/ and /j/. Dissimilation occurs in solely /r/ recurrence and always arises in the coda of a syllable either stressed or unstressed. Meanwhile, in deletion, aphaeresis as one of its processes is identified that the process of deleting phonemes is inspired by syncopation rules. Several rules of syncopation are employed in the process of deleting the initial phoneme of contracted forms.

مستخلص البحث

راشدين، خلفاء. ٢٠١٦. قواعد علم الأصوات الكلامية الإنجليزية في فلم " The Martian". البحث الجامعي. كلية الإنسانية، قسم اللغة الإنجليزية وأدبها، جامعة مولانا مالك إبراهيم الإسلامية الحكومية مالانج. المشرف: دني أيفيتا نور رحماواتي الماجستير.

كلمات أساسية: القواعد الأصواتية، النطق، القول، الصوت، فلم "The Martian"

هذا البحث يبحث قواعد علم الأصوات الكلامية الإنجليزية التي قالها الفاعلون في فلم "The Martian". قواعد علم الأصوات الكلامية هي القواعد التي يقدمها لاس (Lass) ١٩٨٤. هو يقسم قواعد علم الأصوات الكلامية إلى أنواع كثيرة. ولكن هذا البحث يركز في أربعة أنواع من هذه القواعد وهم استيعاب، وعكس التمثل، والحذف، والإدراج. "The Martian"، من أحد فلم هوليود (Hollywood)، المأخوذ في هذا البحث لأن الفاعلين في هذا الفلم يظهر ظاهرة استعمال قاعدة علم الأصوات الكلامية في اللغة الإنجليزية كثير من الأحيان. هذا البحث لإجابة أسئلتي البحث: ١) أي نوع علم الأصوات الكلامية الذي يقوله الفاعلون في فلم "The Martian"؟ ٢) إلى أي حد ما يطبق الفاعلون قواعد علم الأصوات الكلامية في كلامهم؟.

يستخدم هذا البحث المدخل الوصفي الكيفي بهدف وصف تطبيق قاعدة علم الأصوات الكلامية في فلم "The Martian". بجانب نظرية لاس ١٩٨٤، يستخدم الباحث النظرية الأخرى لوصف هذه الظاهرة، منهم يولي (Yule) ٢٠١٠ عن المدعو، مكان التعبير، كيفية التعبير؛ هاييس (Hayes) ٢٠٠٩ عن صبغة المنشأ؛ رواج (Roach) ١٩٩١ عن إنتاج الصوت، وغيرهم.

نتيجة البحث تشير أن ظاهرة استعمال قاعدة علم الأصوات الكلامية في اللغة الإنجليزية كثير تطبيقها من الفاعلين في ثلاثة أنواع القواعد من الأربعة بقيمة الأعلى في الحذف. في الاستيعاب، الصوت يتغير صبغة أو صبغتين. تغيير الصبغة تقع في كثير

العملية، مثل نطق صامت الوقف بتدوير الفم /t/، كتمان صوت الصامت سنخي /d/، نطق صامت الوقف برفع ظهر اللسان إلى الفط العلوي/d/، وغيرهم. تغيير الصبغتين يقع في عملية الأسنان وعملية جعل صامت سنخي الوقف /t/ والنطق الحنكى مركب بين صامت /t/ و/j/. عكس التمثل في تكرار صامت /t/ وهذه الظاهرة تقع على الدوام في المقطع الختامي من المقطع اللفظي إما في الضجيج وإما لا. وبجانب ذلك، في الحذف، *afaeresis* من إحدى العمليات في حذف الصوت بسبب نظم اختصار الحرف. بعض نظام اختصار الحرف ميتعمل في عملية حذف الصوت الأول من أشكال الكلمة المتفقة.

ABSTRAK

Rosyidin, Khulafaur. 2016. Kaidah-kaidah Fonologi Bahasa Inggris yang Dipraktikkan dalam Film "The Martian". Skripsi, Fakultas Humaniora, Jurusan Bahasa dan Sastra Inggris, Universitas Islam Negeri Maulana Malik Ibrahim Malang. Dosen Pembimbing: Deny Efita Nur Rakhmawati, M.Pd.

Kata kunci: kaidah-kaidah phonologi, pengucapan, perkataan, fonem, "The Martian film.

Penelitian ini mengkaji kaidah-kaidah fonologi Bahasa Inggris yang praktikkan oleh karakter-karakter dalam film "The Martian". Istilah *phonological rules* (kaidah-kaidah fonologi), atau disebut juga proses-proses fonologi merujuk kepada teori yang dikemukakan oleh Lass (1984). Dia mengelompokkan kaidah fonologi ke dalam banyak jenis. Akan tetapi, penelitian ini hanya fokus kepada empat jenis saja, yaitu: asimilasi, disimilasi, delesi, dan insersi. "The Martian", salah satu film Hollywood, diambil sebagai objek dalam penelitian ini karena fenomena penggunaan kaidah fonologi bahasa inggris banyak terjadi dalam perkataan-perkataan karakter-karakternya. Penelitian ini dilakukan untuk menjawab dua rumusan masalah: jenis apa saja dari kaidah-kaidah fonologi yang dipraktikkan oleh karakter-karakter dalam film tersebut dan sejauh mana mereka menerapkan kaidah-kaidah fonologi dalam perkataan (dialog) mereka.

Penelitian ini menggunakan pendekatan deskriptif kualitatif yang bertujuan mendeskripsikan praktik kaidah fonologi di dalam film "The Martian". Selain teori dari Lass (1984), gagasan para pakar lain juga digunakan dalam mendeskripsikan fenomena ini, diantaranya: Yule (2010) tentang penyuaraan, tempat artikulasi, dan cara artikulasi, Hayes (2009) tentang matrix fitur, Roach (1991) tentang produksi vokal, dan lain-lain.

Hasil dari penelitian ini menunjukkan bahwa fenomena penggunaan kaidah fonologi Bahasa Inggris banyak ditemukan dalam tiga dari empat jenis yang dibahas dengan angka terbesar pada delesi. Pada asimilasi, fonem bisa mengalami perubahan satu fitur dan dua fitur. Perubahan satu fitur terjadi pada banyak proses, seperti labialisasi konsonan stop /t/, peredaman suara konsonan alveolar /d/, velarisasi konsonan stop /d/, dan lain-lain. Sedangkan perubahan dua fitur terjadi pada proses dentalisasi dan fricatization konsonan alveolar stop /t/ dan palatalisasi gabungan konsonan /t/ dan /j/. Disimilasi ditemukan hanya pada pengulangan konsonan /r/ dan selalu terjadi pada koda suku kata baik yang mengalami penekanan ataupun tidak dalam pengucapannya. Sementara itu, pada jenis delesi, afaeresis sebagai salah satu prosesnya ditemukan bahwa penghapusan fonem dalam proses ini diinspirasi oleh aturan-aturan sinkopasi. Beberapa aturan sinkopasi dipakai dalam proses penghapusan fonem awal dari bentuk-bentuk kata yang disepakati.

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CHAPTER I

INTRODUCTION

In this chapter, several important points related to introduction of the study are discussed. Those are background of the study, research questions, objectives of the study, scope and limitation, significance of the study, definition of the key terms, and research method.

1.1 Background of the Study

Speaking is an expressive and productive skill of language aimed at transmitting messages through articulation. In articulation, speakers should produce the accurate sounds of words in order to be well-grasped by the listeners. Speakers need to notice and follow the phonetic transcription formulated in the dictionaries of language they deal with, primarily English. English possesses such distinct differences and frequent inconsistencies between the spelling of a word and its pronunciation, e.g. *naughty* is transcribed and pronounced as /ˈnɑːti/. Furthermore, the speakers frequently find a situation in which they feel awkward and blocked to articulate sounds of words or phrases due to the different place of articulation of two encountering phonemes. *Jack and Rose,* for instance, the word *and* in isolation tend to be carefully pronounced as /ænd/, but when occurring with other words preceding and following, the native speakers tend to modify it as /æn/, /ən/, or even just /n/ since it is slightly hard to produce the sound /d/ before /r/. Then it will be heard as /ʤæk æn roʊz/, /ʤæk ən roʊz/, and /ʤæk n roʊz/. Likewise, the word *can* /kæn/ may be pronounced /kæm/ if the phoneme

following is a consonant /p/ or /b/ such as in phrase *can play* /kæm ple/ and *can bake* /kæm beɪk/. *Can* also may be pronounced /kæŋ/ in a phrase *can go* /kæŋ goʊ/. These ways of modifying sound of a word are called phonological rules.

Hayes (2009) describes phonological rules as generalizations about the different ways a particular sound can be pronounced in different environments. What are meant by environments in phonology are the neighbouring phonemes. Phonological rules, in other term, are also called *phonological processes*. The term phonological processes refer to Lass's (1984) theory. He classified phonological processes into some types in all over the language. However, this study is focused on four majors of the types found in English, that is, assimilation, dissimilation, deletion and insertion.

The phenomena of English phonological rules have been much occurring within speeches over and over. The speakers apply the rules with the purpose of saving time and energy by drawing sounds together at once (Clarey & Dixson, 1963). The matter is getting intricate for the fact that these ways of pronouncing is not compulsory but is occurring in approximately 60% of the speech cases (Van Heuven & Van Berg, 1982). Nonetheless, only the native speakers (L1) mostly tend to apply phonological rules (Saad & Pilus, 2013), whereas non-native speakers (L2) stick slavishly to the phonetic transcription in the dictionaries. Non-natives let themselves trapped in a complex pronunciation due to the lack of their phonological understandings. If so, in normal and even rapid speech, they can never be speaking naturally and fluently like the native speakers. This problem eagerly interests the researcher to undertake study on phonological rules to

provide more insight and information for particularly non-native speakers' understandings and practices.

Phonological rules have been branded as one of the native-like speech criteria (Hieke, 1987). The rules have also been regarded as important features to assist speaker enhance their fluency (Reed & Michaud, 2006). The pronunciation featured with phonological rules will result smoother, more effortless and more economical transitions from one sound to another (Saad & Pilus, 2013). Therefore, non-native speakers (L2) require the rules to possess beautifully-heard speech like the native speakers (L1).

Due to the phenomena of phonological rules highly found in the native speakers (L1), Hollywood film is representative for the subject rather than searching English speaking community with the native speakers (L1), seeing that the area of study does not reach them. Then, "The Martian" film is taken as the subject of the study because of several reasons. First, "The Martian" is an American film starred by the best Hollywood actors and actresses who possess strong American accent. The film takes setting in Mars as well as in the US so the dialogues spoken by the actors and actresses apply American accent which is one of the most influential English variants. The dialogues are spoken in normal and rapid speech that leads phonological rules to potentially occur. Second, "The Martian" is a nominee of films with best adapted screenplay in 88th Academy Award or best-known as Oscar 2016. It means that the film has got a qualified script including the language applied. Hence, "The Martian" film is significant

and qualified for investigation in terms of the language used, particularly phonological rules.

Research on phonological rules or phonological processes have been conducted by some scholars, e.g. Ingram (1971), Zia (2002), Mitterer & Blomert (2003), Mitterer, et al. (2003), Oshika et al (2003), Restifiza (2012), Sutomo (2012), Mohammed (2013), Saad & Pilus (2013), Skoruppa et al. (2013), and Chandle (2014).

Mitterer and Blomert (2003), for instance, examined phonological assimilation in speech perception which takes Dutch as the object. They focused on how Dutch listeners cope with phonological assimilation in their native language. The results show that phonological assimilations are dealt with by an early prelexical mechanism. Almost the same study, Oshika et al (2003) has investigated "the role of phonological rules in speech understanding. Their research shows that a speech understanding system must account for such variation by incorporating phonological rules, either implicitly or explicitly, into the system. Meanwhile, Saad & Pilus (2013) investigated the ratio of English native speakers and non-native speakers in applying phonological assimilation. The result shows a tendency for the processes occurs highly in the native speakers. The greater details of the previous studies will be elaborated in chapter two.

The distinction between this study from the previous related studies lies on the object and language investigated, types of phonological rules, and focus of the study. The objects and the languages mostly investigated for the previous studies

are Dutch in Netherlanders, Arabic in Qur'an, and Urdu in the dictionary, whereas this study concerns with English in Americans. This study examines assimilation, dissimilation, deletion and insertion, while the previous studies dealt with mostly assimilation only, one of them also took dissimilation. The previous studies focused on finding particular types of phonological rules in the languages and objects investigated as well as speech perception on the rules. Meanwhile, this study focuses on investigating four types of phonological rules in a film and ways the characters apply the rules.

1.2 Research Questions

To make systematic approach in solving the problem, the research question is formulated as follows:

1. What types of phonological rules are applied in "The Martian" film?
2. To what extent do the characters of "The Martian" film apply phonological rules in their speech?

1.3 Objectives of the Study

The objectives of this study are:

1. To know the types of phonological rules applied in "The Martian" film.
2. To identify the patterns and factors of the case of phonological rules are applied by the characters of "The Martian" film in their speech.

1.4 Scope and Limitation

This study focuses on examining types of phonological rules occurring in the dialogues held by the characters in "The Martian" film and to what extent the rules are applied within the characters' speech. The primary theory utilized in this study is Lass's (1984) theory on the classification of phonological rules and supported by the ideas of several experts in regard to phonological rules concepts. Among many types of the rules, this study will focus on four types of them, that is, assimilation, dissimilation, deletion, and insertion.

The subject of this study is the characters in "The Martian" film. Due to the limitation of the time, only four characters possessing major and important roles in the film are taken as the purposeful sample. The characters are Mark Watney, Teddy Sanders, Melissa Lewis, and Vincent Kapoor.

1.5 Significance of the Study

This study on phonology is significant to conduct due to the theoretical and practical function. Theoretically, the study will give more sights in terms of phonology to the readers of the study, particularly English non-native speakers. Hopefully, they can expand the theoretical perspective for their understandings regarding the phonological rules or phonological processes as a basic concept of phonology. Mastering the concept of phonological rules will assist them in perceiving speech featured phonological rules, especially the native speakers speech. Practically, the results of the study will inspire the readers to feature phonological rules within their speaking practice, e.g. holding daily conversation,

delivering speech, and so on. It is significant to master since phonological rules are a manner to ease and beautify the sounds production of pronunciation. In terms of educational learning, the findings resulting from the data are potential to help teachers in phonological teachings, especially in EFL. Furthermore, the study is expected to provide aid to the researchers when conducting the future research in the same field.

1.6 Research Method

The research method of this study encompasses research design, data source, research instrements, data collection, and data analysis.

1.6.1 Research Design

This study was designed to describe the phenomena of phonological rules occuring in "The Martian" film, precisely the types of phonological rules which are applied by the characters within the film and to what extent they feature the rules in their speech. It is, thus, representing qualitative inquiry as the study is projected to explore and comprehend social phenomena and human problems (Creswell, 2009). Then, since the phenomena investigated are from a film, in this case, "The Martian", this qualitative inquiry is categorized as document study (Rahardjo, 2010). Therefore, the design of this study leads the investigation to construct descriptive data in the form of spoken words from the observed people or characters (Bogdan & Taylor, 2007).

1.6.2 Data Source

Regarding the data source, it was taken from speech uttered by the characters in "The Martian" film. The data of the study were in the form of words

or phrases produced by those characters as well as the phonetic transcription. Besides, to ensure that the utterances produced by the characters are identified correctly and found no mistakes at all, the script of the film was involved.

1.6.3 Research Instruments

Due to qualitative inquiry, the key instrument employed in examining the document was the researcher himself (Creswell, 2009). In examining "The Martian" film, the researcher exploited his language competence to analyze the phonological rules within the data. The researcher had prepared himself in deepening understandings on the concept, theory, and method demanded for investigation.

Besides the researcher himself, the Oxford Advanced Learner's Dictionary (OALD) was also utilized as an instrument for analyzing the data. It was selected as the dictionary provides phonemes transcribed in more detail. The researcher consulted the dictionary to phonetically and phonemically transcribe the words or phrases containing phonological rules.

1.6.4 Data Collection

The procedure of collecting the data was conducted through observation. The observation was executed in several steps. Firstly, the researcher watched "The Martian" film as well as listening the whole dialogues and monologues in the film. At that time, the film script also was looked very attentively. Secondly, the researcher concentrated on the investigated characters' dialogues or monologues to find out the characters' speech featured phonological rules and then directly signed them on the script paper. Thirdly, the data were collected in

the form of either words or phrases. Fourthly, the researcher listened to the sounds of selected words and phrases carefully to make sure that phonological rules occur within. Fifthly, the data were respectively listed to be analyzed with the theory proposed.

1.6.5 Data Analysis

From the collected data comprising list of words or phrases featured with phonological rules, the researcher, firstly, used phonetic transcription to code the speech sounds produced by the investigated characters. The sounds affected by phonological rules were phonetically transcribed grounded in *IPA (International Phonetic Alphabet).* Afterwards, secondly, the data were identified in the case of the alteration of speech sound. From the altered speech sound of the words and phrases, thirdly, the data were analyzed in accordance with the first research question, the types of phonological rules occurring within the articulation and then listed separately based on the types of phonological rules. Lastly, the data were analyzed under the second research question proposed.

1.7 Definition of the Key Terms

The understandings on the concepts brought in this study are expected to be deep in order to avoid misunderstanding and misinterpretation. Therefore, the researcher provides some definitions of the key term as follows:

1. Phonological rules (processes) are manners of pronouncing words or syllables different from what are transcribed in most dictionaries due to the phonetic

contexts. The rules includes, in this study, assimilation, dissimilation, deletion and insertion.

2. Pronunciation, in this case is English pronunciation, is the ways of saying words (Hornby, 2015).
3. Speech is the spoken language (Hornby, 2015).
4. Phoneme is the smallest distinctive unit of sounds in a particular language (Skandera & Burleigh, 2006).
5. Feature is the characteristics of a phoneme in terms of voicing, place of articulation, and manner of articulation.
6. “The Martian” film is a 2015 Hollywood movie, an American science fiction film, which is adapted from Andy Weir’s 2011 novel with the same title, “The Martian”. The film tells about Watney, an astronaut who is mistakenly presumed dead during the Mars storm so that he is left behind on Mars. It portrays his struggle to survive on the planet and NASA’s plans to rescue and bring him back to earth.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

In this chapter, the discussion covers the supporting theories and previous studies of the case of phonological rules.

2.1 Phonetics and Phonology

An aspect that constitutes language so as to be orally expressed is speech sounds. The study of speech sounds covers two fundamental sub-disciplines in linguistics, that is, phonetics and phonology (McMahon, 2002; Hayes, 2009).

Phonetics is the study of speech sounds features (Yule, 2010). It deals with the characteristics of a single sound in human languages. Phonetics is fundamentally an experimental science dealing with three points of view, production, transmission, and perception (Hayes, 2009). These viewpoints are, then, formulated and termed as phonetics sub-branches or areas, namely articulatory phonetics, acoustic phonetics, and auditory phonetics.

Articulatory phonetics concerns with how speech sounds are made, produced, or 'articulated' within human vocal tract. Meanwhile, *acoustic phonetics* is the study of the physical properties of speech as sound waves in the air; the waveforms by which speech is transmitted. The other one, *auditory phonetics*, concerns with how the speech sounds are perceived by the listeners (Hayes, 2009). Therefore, phonetics can be understood more deeply through the definition that it is the study how the sounds are produced, transmitted, and perceived in actual speech.

‘Phonology deals with speakers’ knowledge of the sound system of a language’ (Skandera & Burleigh, 2006: 5). The study is merely concerned with speech sounds design or arrangement of a particular language. Phonology studies the function of speech sounds relation within a language (Forel & Puskas: 2005). In other words, it is about how a single sound is connected to each other so as to generate a meaningful word.

Phonology is split up into two branches, that is, segmental phonology and suprasegmental phonology (Skandera & Burleigh, 2006). *Segmental phonology* is the segmentation of language into various distinctive speech sounds that is presented by phonetics, e.g. the word “sand” consists of four segments, represented as “s”, “a”, “n”, and “d”. *Suprasegmental phonology*, also known as prosody, is unsegmented features of phonology, such as tone, stress, rhythm, and intonation (Skandera & Burleigh, 2006).

Phonetics and phonology is often interchangeably understood as both talk about speech sounds. Nevertheless, it can be underlined that the difference between both of the linguistics branches lies on the area of the study. Phonetics deals with how sounds are produced, transmitted, and perceived, whereas phonology is about how sounds are arranged and designed to form a meaningful word. Regardless to the difference, both possess a relation that phonetics is as a descriptive tool essential to investigate a particular language phonological aspects (Puskas & Forel, 2005).

2.2 Segmental Phonology

As defined above, segmental phonology is the segmentation of language into various distinctive speech sounds that is presented by phonetics (Skandera & Burleigh, 2006). For example, the word “buy” consists of three segments, represented as “b”, “u”, and “y”. Hence, the domain of segmental phonology is in analyzing individual, separate segments, phonological units in isolation. The individual and separate segments in phonology are so-called phonemes.

According to Skandera and Burleigh (2006), ‘*Phoneme* is the smallest distinctive, or contrastive, unit in the sound system of a language’ (p. 19). For example, the words *pig* and *big* are in contrast and possess different meanings, so /p/ and /b/ represent different phonemes.

2.3 The Production of English Sounds

2.3.1 The English Vowels

Vowel is a sound produced through the vocal folds with no restriction or constriction of the airflow inside the mouth (Yule, 2010). Vowel can be classified into the length, the tongue position, the lip position, and the stability of articulation.

2.3.1.1 Vowel Length

Vowel length is based on the duration of the articulation. It is divided into long vowels and short vowels (Skandera & Burleigh, 2005). Long vowels encompasses [iː, ɜː, ɑː, ɔː, uː,], and short vowels are [ɪ, e, æ, ʌ, ɒ, ʊ, ə] (Roach, 1998; Skandera & Burleigh, 2005).

2.3.1.2 The Tongue Position

Regarding the tongue position, the production of vowel takes vertical and horizontal position of the mouth. The vertical generates front, central or middle, and back vowels while the horizontal produces high, middle, and low vowels (Yule, 2010). These can be described by the following chart.

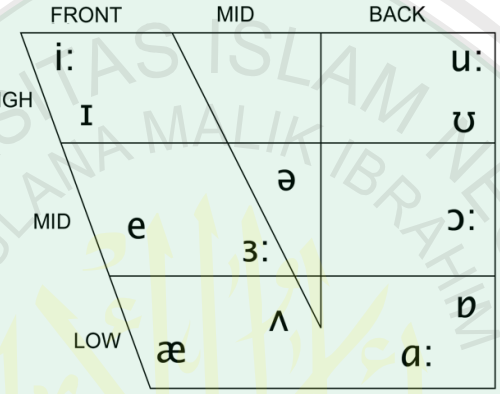


Figure (1): English vowel chart (Birjandi & Ali, 2005:73)

2.3.1.3 The Shape of Lips

When the lips are neutral or spread, the vowels are called *unrounded.* These vowels are [iː, ɪ, e, æ, ɑː, ʌ, ɜː, ə]. When the lips are drawn together so that the opening between them is more or less round, the vowel is called *rounded*. These vowels includes [o, ɔː, ʊ, uː] (Hayes, 2009).

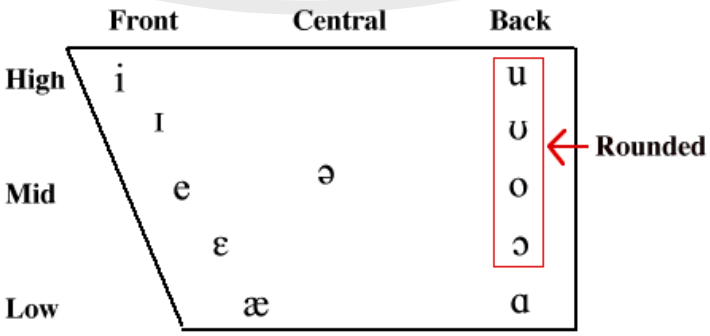


Figure (2): Rounded and unrounded vowels

2.3.1.4 The Stability of Articulation

Monophthongs

Monophthongs are single vowels in the articulation. They are [iː, e, æ, ɑː, ɔː, ʊ, uː, ʌ, ɜː, ə, ɒ].

Diphthongs

Diphthongs are vowels that are produced by a combination of another vowel. These sounds are [eɪ, aɪ, ɔɪ, aʊ, əʊ, ɪə, eə, uə].

Triphthongs

Triphthongs are vowels made by a combination of two other vowels. These sounds are produced by gliding from a vowel to another and then to the third vowel. Triphthongs are composed by the closing diphthongs with ə as an ending parts. There are five compositions of triphthongs as follows:

a) eɪ + ə = eɪə

b) aɪ + ə = aɪə

c) ɔɪ + ə = ɔɪə

d) əʊ + ə = əʊə

e) aʊ + ə = aʊə

(Roach, 1998)

2.3.2 The English Consonants

Consonant is a sound produced with restriction of the airflow in some manner (Yule, 2010). The sounds articulated by contacting particular parts of the mouth with other parts. Consonants are frequently categorized into a so-called VPM-label, which stands for Voicing, Place, and Manner (Puskas & Forel, 2005).

2.3.2.1 Voicing

In this sense of production, there are voiced and voiceless consonants. When the production of sounds is done by vibrating the vocal folds, they are called *voiced consonants* (Yule, 2010). In English, the consonants are [b, d, g, v, ð, z, ʒ, l, r, j, w, dʒ, m, n, and ŋ].

Meanwhile, when the speaker produces sounds without any vibration of the vocal folds, the phonemes are called *voiceless*. In English, the voiceless consonants are [p, t, k, f, θ, s, ʃ, h, and tʃ.

2.3.2.2 Place of Articulation

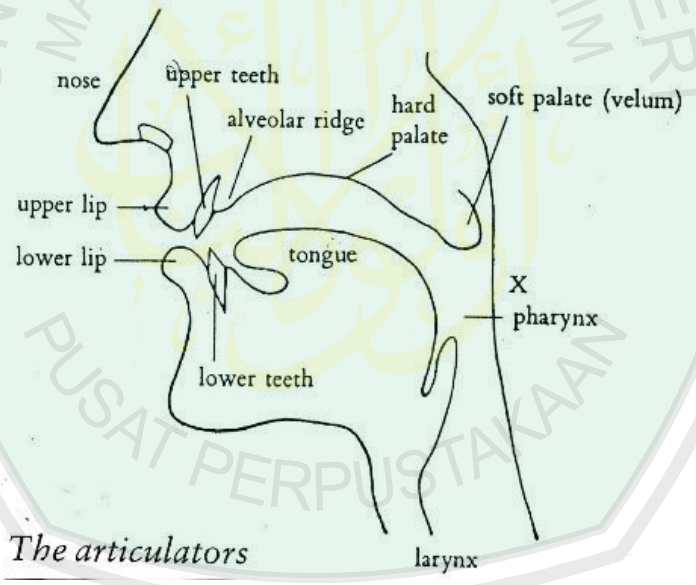


Figure (3): place of articulation (Roach, 1998: 8)

Bilabials

These consonants are articulated by confront upper and lower lips. Examples are [p], which is voiceless, as in *pay* or [b] and [m] which are voiced, as in *bay*, *may*. Bilabials encompasses [b] [m] [p], and [w].

Labiodentals

Labiodental consonants are articulated when the lower lip is raised towards the upper front teeth. Examples are [f] *safe* (voiceless) and [v] *save* (voiced). The consonants include [f] and [v].

Dentals

Dental consonants are formed by touching the upper front teeth with the tip of the tongue. Examples are [ð] *oath* (voiceless) and [θ] *clothe* (voiced). The consonants encompass [ð] and [θ].

Alveolars

Alveolar consonants are produced by raising the tip of the tongue towards the ridge that is right behind the upper front teeth, called the alveolar ridge. Examples are [t, s] *too sue*, both voiceless, and [d, z, n, l, r] *do*, *zoo*, *nook*, *look*, *rook*, all voiced.

Palatals

Palatal consonants are articulated by raising the blade of the tongue towards the part of the palate just behind the alveolar ridge. Examples [ʃ] *pressure*, [tʃ] *batch* (voiceless) and [ʒ] *pleasure*, [dʒ] *badge* (voiced), and [j] *yes*, *yellow*, *beauty*, *new* and it is voiced.

Velars

Velar consonants are articulated by raising the back of the tongue towards the soft palate, called the velum. Examples [k] *back*, voiceless, and [g, ŋ] both voiced *bag*, *bang*. [w] is a velar which is accompanied with lip rounding.

Glottals

Glottal sounds are formed when the air passes through the glottis as it is narrowed: [h] as in *high* (Yule, 2010).

2.3.2.3 Manners of Articulation

Stops or Plosives

These Consonants have a total closure within the mouth and then let the airflow go. They are [p], [b], [t], [d], [k], and [g].

Fricatives

These consonants have a nearly closure within the mouth. They includes [f], [v], [θ],[ð], [s], [z], [ʃ], and [ʒ].

Affricates

Affricates are a manner of combining a plosive and a fricative. The consonants are [tʃ] and [dʒ].

Nasals

These consonants have a total closure within the mouth, but since the velum is lowered the air can break out through the nasal cavity. The consonants are [m], [n], and [ŋ].

Liquids

Liquids are consonants in which the air breaks out around the sides of the tongue. These consonants are [l] and [r]

Glides

These consonants are produced by moving the tongue (gliding) to or from a vowel sound. These consonants are [w], [j], and [h].

Glottal Stops and Flaps

Glottal stops are consonants articulated in which the air flowing through the glottis is blocked totally then escaped. The glottal stop is represented by [ʔ]. Meanwhile, the flaps are articulated with the tongue tip briefly touching the alveolar ridge. The flap is symbolized as [D] or [ɾ] (Yule, 2010).

To ease and advance the understanding on the categorization of consonants so-called VPM-label, it is summarized as the following chart. The distinct labels for the place of articulation are provided along the top of the chart. Under each of the places of articulation, the label of voicing which is represented by –V for voiceless and +V for voiced. Besides, the different labels for the manner of articulation are on the left-hand side.

	Bilabial		Labiodental		Dental		Alveolar		Palatal		Velar		Glottal	
	–V	+V	–V	+V	–V	+V	–V	+V	–V	+V	–V	+V	–V	+V
Stops	p	b					t	d			k	g		
Fricatives			f	v	θ	ð	s	z	ʃ	ʒ			h	
Affricates									ʧ	ʤ				
Nasals		m						n				ŋ		
Liquids								l r						
Glides		w								j				

Figure (4): consonants chart (Yule, 2010: 30)

2.4 The International Phonetic Alphabet

International Phonetic Alphabet, or IPA, is phonetic alphabet extensively utilized and one which represents suitable symbols for any language sounds all

over the world (Skandera & Burleigh, 2005). The followings are the IPA symbols for the common phonemes of the English Language:

Monophthong vowels

IPA symbols	Example	Phonetic Transcription
iː	three	/θriː/
i	any	/ˈen.i/
ɪ	bin	/bɪn/
æ	fat	/fæt/
ɑː	far	/fɑːr/
ɔː	sort	/ʃɔːrt/
ʊ	put	/pʊt/
u	usual	/ˈjuː.ʒu.əl/
uː	boot	/buːt/
ʌ	up	/ʌp/
ɜː	her	/hɜːr/
ə	ago	/əˈgəʊ/
e	bed	/bed/
ɒ	rock	/rɒk/

Diphthong vowels

IPA symbols	Example	Phonetic Transcription
eɪ	pay	/peɪ/
aɪ	five	/faɪv/
əʊ	home	/həʊm/
aʊ	now	/naʊ/
ɔɪ	join	/dʒɔɪn/
ɪə	near	/nɪər/
eə	hair	/heər/
ʊə	pure	/pjʊər/

Consonants

IPA symbols	Example	Phonetic Transcription
p	pen	/pen/
b	bad	/bed/
m	man	/mæn/
f	fall	/fɔːl/
v	van	/væn/
θ	thin	/θɪn/

ð	this	/ðɪs/
t	tiger	/ˈtaɪgər /
s	snake	/sneɪk/
d	dolphin	/ˈdɒl.fɪn/
z	zoo	/zuː/
n	now	/naʊ/
l	leg	/leg/
r	red	/red/
tʃ	cheese	/tʃiːz/
ʃ	shoe	/ʃuː/
dʒ	jam	/dʒæm/
ʒ	vision	/ˈvɪʒən/
j	young	/jʌŋ/
k	cat	/kæt/
g	get	/get/
ŋ	sing	/sɪŋ/
ẇ	wet	/wet/
h	hat	/hæt/

2.5 Phonological Rules

Phonological rules or also called as *phonological processes* are defined as mappings between two distinct levels of sound representation (Goldsmith, 1995). Furthermore, Hayes (2009) describes phonological rules as generalizations about the distinct ways in which a particular sound can be pronounced in distinct environments. What are meant by environments in phonology are the neighboring phonemes. Thus, phonological rules deal with the alteration of sound in a syllable of word or phrase caused by the preceding or following phoneme., *I can play,* for instance is actually pronounced as /aɪ kæn pleɪ/ but is alternated into /aɪ kæm pleɪ/ as the phoneme /n/ faces /p/ it will sound /m/.

There are several types of phonological rules in all over the world grounded in Lass' (1984) theory. Three majors of the types frequently found in English are assimilation, dissimilation, and deletion.

2.5.1 Assimilation

Lass (1998: 171) wrote that 'assimilation is one segment becomes more like (or identical to) another (or two become more like each other)'. It is a process when a phoneme alters to produce another more similar to or even the same as the neighbouring phoneme. *That page*, for instance, is not pronounced /ðæt peɪdʒ/ but /ðæp peɪdʒ/. Assimilation has three kinds, regressive assimilation, progressive assimilation, and reciprocal assimilation.

2.5.1.1 Regressive Assimilation

Regressive assimilation occurs when the final phoneme of the preceding word or syllable becomes similar to, or the same as, the initial phoneme of the following word or syllables (Lass, 1998). The alteration of phoneme /t/ becomes /p/, for instance, in *that page* /ðæ**p** **p**eɪdʒ/. The final phoneme of *that* is influenced by the initial phoneme of *page* so that both become the same (Djarjowidjojo, 2009).

2.5.1.2 Progressive Assimilation

Progressive assimilation is the reverse of regressive assimilation (Lass, 1998). It occurs when the initial phoneme of the second word or syllable becomes similar to, or the same as, the final phoneme of the preceding word or syllable (Djarjowidjojo, 2009). For example, *kill him* is not pronounced /kɪl hɪm/ but /kɪ**l** **l**ɪm/. The sound /h/ of *him* alters to /l/ as the preceding word is ended with /l/.

2.5.1.3 Reciprocal Assimilation

Reciprocal assimilation occurs if there is a mutual influence between the two phonemes (Lass, 1998). The final phonemes of the preceding word or syllable

and the initial phoneme of the following word or syllable are influencing each other so that it leads them to alter into a new sound. *Get you*, for instance, is not pronounced /get juː/ but /getʃuː/. Phoneme /t/ and /j/ are influencing each other until shifting into a new sound /tʃ/.

2.5.2 Dissimilation

Dissimilation is the reverse of process of assimilation (Lass, 1998). It means that a phoneme avoids taking the feature of the neighbouring phonemes. Darjowidjoyo (2009) also stated that dissimilation is the process of omitting or altering a sound due to awkward repetition of the sounds within a word. It can be remarked that the essence of dissimilation is to avoid lending the feature of the preceding and following phonemes by omitting the awkward one. The case of the word *surprise*, for example, is not pronounced /sərpraɪz/ but /sə'praɪz/. Phoneme /r/ within syllable /sər/ is omitted since sound /r/ exists in the next syllable /praɪz/.

2.5.3 Deletion

Deletion, also called elision, is the merger of a phoneme with another (Lass, 1998). It means this process results one phoneme in articulation. Birjandi (2005) simplifies understanding of deletion by the process of eliding a sound or syllable of a word. The word *Potato*, for instance, is not pronounced /pəˈteɪ.təʊ/ but /pˈteɪ.təʊ/.

Deletion is classified into a more specific conventional terminology:

2.5.3.1 Aphaeresis

Aphaeresis is when the loss of a phoneme happens in the beginning of a word (initial deletion). *I am* /ai æm/, for example, is pronounced /aɪm/, and

morphologically written as *I'm* (Lass, 1998). This terminology includes the contracted form in English, such as *I've* stands for *I have*, *I'd* for *I would* and *I had*, *you're* for *you are*, e.t.c.

2.5.3.2 Syncope

Syncope (syncopation) is the term often utilized for the loss of vowels, yet consonants are occasionally also included for this discussion by some writers. Dictionary, for instance, is faithfully pronounced as /ˈdɪkʃənri/ for British, but then modified as /ˈdɪkʃnri/ in which the schwa is elided (Lass, 1998).

The loss of phonemes is particularly affected by, first, the weak status of a vowel which occurs after voiceless stop consonants, /p/, /t/, and /k/ (Dardjowijojo, 2009). The following words are often pronounced without the weak vowel schwa.

Potato /ptato/

Tomato/tmeto/

Canary /knærɪ/

Second, the phoneme can be omitted when a weak vowel occurs before the syllabic consonants, /l/, /m/, /n/, and occasionally /r/. *Seven*, is pronounced as /ˈsevn/ where the schwa before the phoneme /n/ is deleted (Birjandi, 2005).

Third, deletion process can occur because of complex consonant clusters. In English phonotactic constraints, a large number of words are constructed with three or even four phonemes, or sometimes consisting of two phonemes but complicated to articulate. Thus, when pronouncing such words, most of the native speakers drop one or more phoneme from the cluster patterns. The pronunciation of the word clothes /kloʊðz/, for example, is frequently altered into /kloʊz/. *Text*

/tekst/ and *texts* /teksts/ are both often pronounced /teks/ by eliding /t/ and /ts/ respectively (Birjandi, 2005; Dardjowidjojo, 2009).

2.5.3.3 Apocope

Apocope (apocopation) is eliding the final phoneme of a word (Lass, 1998). The final phoneme of a word is elided when they are stop alveolar consonants, /t/ and /d/ and that are immediately linked by a word with a consonant in the initial phoneme, as in *last week*, that is pronounced /læs wiːk/ and *black and white* /blæk æn waɪt/ (Lass, 1998; Birjandi, 2005).

2.5.4 Insertion

Insertion is when an extra phoneme is added or inserted between two other phonemes (Panevova & Hana, 2010). The phoneme is inserted to bridge two phonemes with distant place and manner of articulation. The word *prince*, for instance, /t/ is occasionally added between sound /n/ and /s/ so that it is pronounced /prɪn*t* s/.

2.6 Synopsis of "The Martian" Film

"The Martian" film is a 2015 Hollywood movie, an American science fiction film, which is adapted from Andy Weir's 2011 novel with the same title, "The Martian". The film tells about Watney, an astronaut, who is part of the Ares III team, mistakenly presumed dead during the Mars storm so that he is left behind on Mars. It portrays his struggle to survive on the planet and NASA's plans to rescue and bring him back to earth with the assistance of The China National Space Administration.

The characters of “The Martian” film are *Mark Watney*, who is part of the Ares II, *Melissa*, a geologist and the Ares III mission commander, *Major Rick Martinez*, who is the pilot of the Ares III mission and the closest one to Watney, *Beth Johannes*, the Ares III's system operator, *Dr. Chris Beck*, an astronaut and flight surgeon for the Ares III mission, *Dr. Alex Vogel*, a German national who is the navigator and chemist of Ares III, *Vincent Kapoor*, NASA's Mars mission director, and the first person to establish contact with Watney. They are supported by *Mindy Park*, a satellite planner in Mission Control, the first person to realise that Watney is alive, *Mitch Henderson*, the Ares III's mission director. His priority at all times is the welfare and stability of the Ares III crew, *Theodore “Teddy” Sanders*, the NASA administrator, *Rich Purnell*, a JPL astrodynamicist who devises the plan to save Watney. *Bruce Ng*, director of JPL, *Annie Montrose*, the director of media relations for NASA, *Guo Ming*, chief scientist at China National Space Administration (CNSA), *Zhu Tao*, deputy chief scientist at CNSA, *Ryoko* and *Tim Grimes*.

The story begins with the exploration for the Acidalia Planitia expedition on Mars by the crew of the Ares III. An unexpectedly strong dust storm threatens to topple their Mars Ascent Vehicle (MAV), forcing them to hastily leave the planet. During the evacuation, astronaut Mark Watney is struck by debris and lost in the storm, the last telemetry from his suit indicates no signs of life and he is presumed dead. Then they decide to leave him on the planet.

Watney awakens after the storm to a low oxygen warning and makes his way to the “Hab”, the crew’s base of operations. He realizes that his only chance

of rescue is the arrival of the Ares IV crew in four years. He, then, attempts hard to survive, including improving a farm to plant potatos for his everyday meals.

Knowing that Watney is still alive and left on Mars, NASA plans to send a space probe to Mars and resupply Watney with enough food to survive until the arrival of Ares IV's arrival. But, then the supply probe explodes shortly. The China National Space Administration offers NASA the *Taiyang Shen*, a classified booster that can carry a payload to Mars. However, Sanders rejects the plan, refusing to risk the crew.

Meanwhile, Watney's crew mates bravely plan to execute rescue mission for Watney. They want to bring back him with them as they feel regretful leaving him alone on the planet.

After returning to Earth, Watney begins a new life as a survival instructor for new astronaut candidates. Five years later, on the occasion of the Ares V mission launch, those involved in Watney's rescue have returned to their lives or begun new lives.

2.7 The Previous Studies

Studies on phonological rules or phonological processes have been conducted by some scholars, e.g. Ingram (1971), Zia (2002), Mitterer & Blomert (2003), Mitterer, et al. (2003), Oshika et al. (2003), Restifiza (2012), Sutomo (2012), Mohammed (2013), Azannee & Pilus (2013), Skoruppa et al. (2013), and Chandle (2014).

Zia (2002) investigated assimilation and dissimilation rules in Urdu. The research was aimed at uncovering these assimilation and dissimilation rule, which are spoken by the speakers of Urdu. To justify the accuracy and credibility of the research data, he utilized Praat to analyze the alteration of sounds containing assimiliation and dissimilation. He found that the rules of assimilation occur in nasalization and are not independent, they may occur in conjunction as well.

Meanwhile, Mitterer and Blomert (2003) examined phonological assimilation in speech perception which takes Dutch as the object. They focused on how Dutch listeners cope with phonological assimilation in their native language. Four experiments were granted to the object. A first word identification experiment showed that the perception of a word-final nasal depends on the subsequent context. Viable assimilations, but not unviable assimilations, were often confused perceptually with canonical word forms in a word identification task. Two control experiments ruled out the possibility that this effect was caused by perceptual masking or was influenced by lexical top-down effects. The results show that phonological assimilations are dealt with by an early prelexical mechanism.

In the same year, Mitterer and Blomert (2003) accompanied by Csepe conducted almost the same research, “Compensation for phonological assimilation perception: Evidence from Hungarian liquid assimilation. The different from the earlier research is that, they examined the mechanisms that drive this compensation for assimilation by presenting Hungarian morphologically complex words and non-words to Hungarian and Dutch listeners in an

identification task, a discrimination task and a passive-oddball task during the experiments were measured. The experiments results indicate that acoustic details influence the compensation process, and replicate the absence of a native-language influence. These results indicate that auditory processes contribute to compensation for assimilation.

On the other hand, Restifiza (2012) conducted study on "phonological processes of Indonesian borrowing words used by Minangkabaunese in Bukit Tinggi". The goals of her research are to know the phenomena of language borrowing words in Minangkabaunese and to investigate the phonological rules occur within the language. In Restifiza's research, several types of phonological rules were found in Minangkabauneses' Indonesian borrowing words, but some of the rules are not found like dissimilation and prosthesis of ephenthesis process.

Muhammed (2013) examined Quranic phonology and generative phonology. The study is aimed at formulating and generating generative phonological rules of the Arabic mainly non-syllabic Nuun's Rules. The results indicated that the process of formulating the generative rules started by stating the main Quranic phonological rule and then translating it into a generative phonological one with the use of distinctive features which have been used originally by Chomsky and Halle.

Meanwhile, Azannee & Pilus (2013) investigated the ratio of the frequency of English phonological assimilation applied by the native speakers (L1) and experienced non-native speakers (L2). The study set up experiments involving reading and spontaneous speech performance. The result shows a

tendency for the processes occurs more highly in the speech of native speakers than non-native speakers, although the L2 group is experienced English language instructors.

CHAPTER III

FINDINGS AND DISCUSSION

In this chapter, the researcher provides findings of the study for the analysis of Lass's (1984) theory on the classification of phonological rules. Among many types of the rules, the analysis will focus on four types of them, that is, assimilation, dissimilation, deletion, and insertion. In addition, the researcher will dig up information about to what extent the case of phonological rules applied by the characters of "The Martian" film in their speech. To advance understanding on the two research questions, the researcher presents extensive discussion about the both cases.

3.1 Research Findings

3.1.1 Types of Phonological Rules

After listening very attentively to the speech produced by "The Martian film's characters, in exploring for the phenomena of phonological rules, the findings concerned with both research questions are obtained. The first research question of this study is dealing with the types of phonological rules applied in "The Martian" film among four types proposed, assimilation, dissimilation, and deletion. The data are provided separately based upon each of the types.

3.1.1.1 Assimilation

Assimilation process is found to occur in 41 words and phrases. 18 words and phrases are applied with regressive assimilation, 22 are for progressive assimilation, and 1 phrase is reciprocal assimilation. For the respective data, the identified words and phrases are analyzed based upon their types.

a) Regressive Assimilation

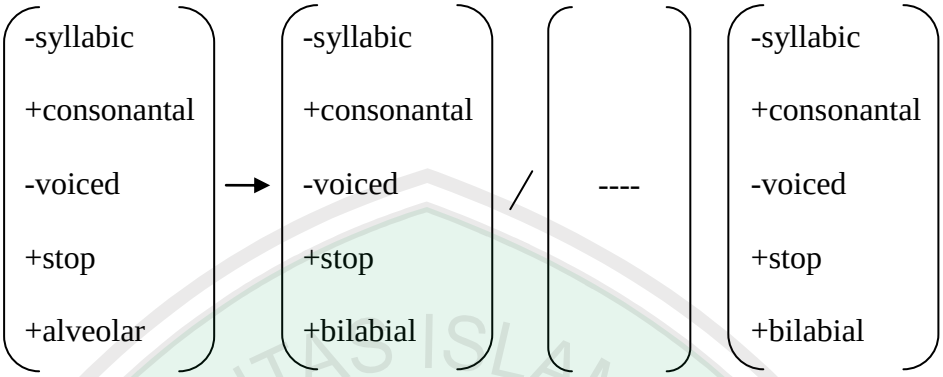
This type of assimilation process applies for 18 words and phrases with 8 phoneme alterations. The followings are the samples of words and phrases with each of their phoneme alterations.

Table 3.1 words and phrases featured with regressive assimilation

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme encounters	Phoneme alterations
1.	Abort procedure	/əˈbɔːt prəˈsiːdʒər/	/əˈbɔːp prəˈsiːdʒər/	/t/ enc. /p/	/t/ into /p/
	Get moving	/get ˈmuːvɪŋ/	/gep ˈmuːvɪŋ/	/t/ enc. /m/	
2.	It that	/ɪt ðæt/	/ɪð ðæt/	/t/ enc. /ð/	/t/ into /ð/
3.	Standard time	/ˈstændərd taɪm/	/ˈstændərt taɪm/	/d/ enc. /t/	/d/ into /t/
4.	Good kick	/gʊd kɪk/	/gʊk kɪk/	/d/ enc. /k/	/d/ into /k/
5.	Obviously	/ˈɒb.vi.ə.sli/	/ˈɒv.vi.ə.sli/	/b/ enc. /v/	/b/ into /v/
6.	I can get	/kæn get/	/kæŋ get/	/n/ enc. /g/	/n/ into /ŋ/
7.	Iron man	/ˈaɪrn mæn/	/ˈaɪrm mæn/	/n/ enc. /m/	/n/ into /m/
8.	All right	/ɔːl raɪt/	/ɔː raɪt/	/l/ enc. /r/	/l/ into /r/

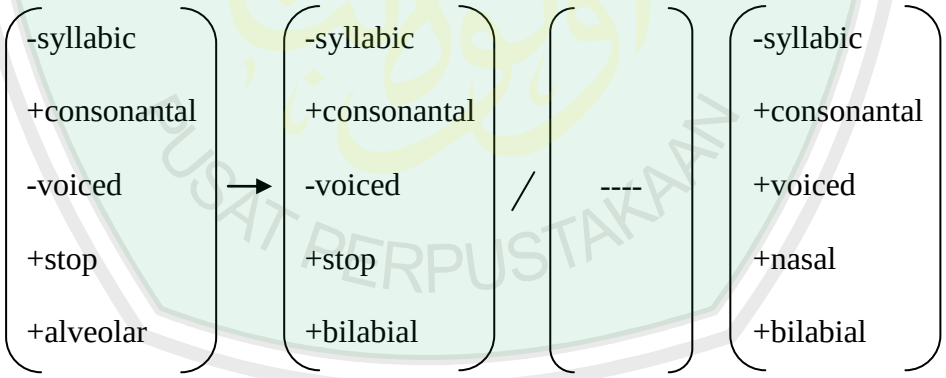
In the table above, the regressive assimilation process is, first, identified with the alteration of alveolar /t/ into bilabial /p/. /t/ is converted into /p/ as followed by bilabial /p/ and /m/, as shown in *abort procedure* and *get moving.* These two phrases are faithfully pronounced and phonetically transcribed as /əˈbɔːt prəˈsiːdʒə(r)/ and /get ˈmuːvɪŋ/ respectively. However, the speakers modify them as /əˈbɔːp prəˈsiːdʒə(r)/ and /gep ˈmuːvɪŋ/. In this way, there is an alteration of /t/ into /p/. The process can be drawn with the feature matrices below:

Abort procedure /əˈbɔː**t** **p**rəˈsiːdʒər/ → /əˈbɔː**p** **p**rəˈsiːdʒər/



/t/ which is voiceless, stop, and alveolar consonant assimilates fully into /p/ which is characterized as voiceless, stop, and bilabial. The bilabial feature of the latter phoneme is taken by the erlier phoneme. Consequently, the phoneme produced for the compensation of /t/ is /p/.

Get moving /ge**t** ˈ**m**uːvɪŋ/ → /ge**p** ˈ**m**uːvɪŋ/



/t/, which has the features voiceless, stop, and alveolar, assimilates partially into /m/, which is voiced, nasal, and bilabial. This happens as the case of the erlier phrase that the bilabial feature of the latter phoneme is taken by the erlier phoneme. Hence, the phoneme produced is /p/ instead of /t/.

Second, it is found that voiceless /t/ alters into voiced /ð/. /t/ is converted into /ð/ as followed /ð/. It occurs in *it that*, that is phonetically transcribed and faithfully pronounced as /ɪt ðæt/. Nonetheless, it is pronounced as /ɪð ðæ'/. The feature matrix to show the phoneme alteration is drawn as:

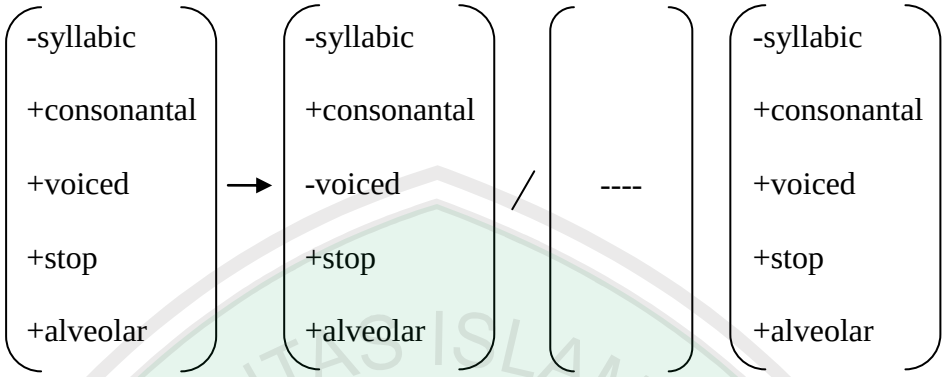
It that /ɪ**t ð**æt/ → /ɪ**ð ð**æ'/

-syllabic		-syllabic				-syllabic
+consonantal		+consonantal				+consonantal
-voiced	→	+voiced	/	----		+voiced
+stop		+fricative				+fricative
+alveolar		+dental				+dental

/t/, which has voiceless, stop, and alveolar feature, assimilates fully into /ð/, which is voiced, fricative, and dental consonant. It takes all the features of the latter phoneme. Consequently, the phoneme produced for the compensation of /t/ is /ð/.

This process is, third, identified with the alteration of voiced /d/ into voiceless /t/ as followed by voiceless /t/, as in the phrase *standard time*. This phrase is phonetically transcribed and faithfully pronounced as /ˈstændərd taɪm/, but the speaker modifies it into /ˈstændərt taɪm/. The feature matrix is:

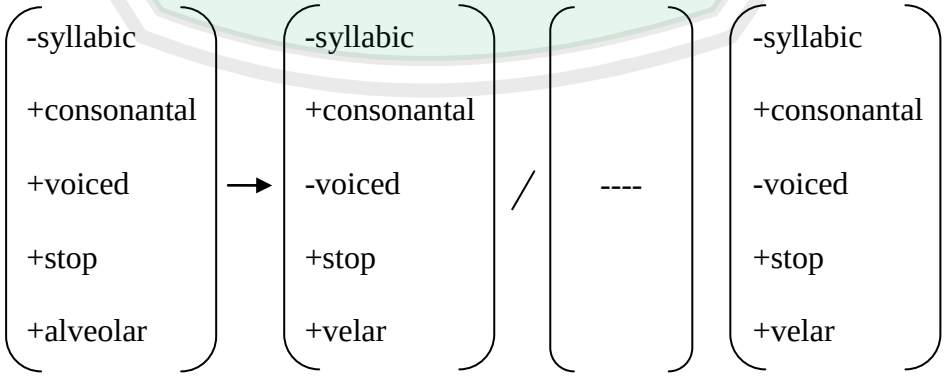
Standard time /ˈstændər**d** **t**aım/ → /ˈstændər**t** **t**aım/



/d/, which has the features voiced, stop, and alveolar, assimilates fully into /t/, which is voiceless, stop, and alveolar consonant. The first phoneme is only taking the voiced feature of /t/ to alter into the same phoneme.

Fourth, the regressive assimilation process is on the alteration of voiced alveolar /d/ into voiceless velar /k/ as followed by /k/. It occurs in the phrase *good kick*, which is phonetically transcribed and faithfully pronounced as /gʊd kık/. However, it is modified as /gʊk kık/. It can be disentangled by the feature matrix below:

Good kick /gʊ**d** **k**ık/ → /gʊ**k** **k**ık/



/d/, which has the features, voiced, stop and alveolar, assimilates fully into /m/, which is voiceless, stop, and velar consonant. The first phoneme takes the

voiceless velar of the second phoneme. Hence, the phoneme produced is /k/ instead of /d/.

The fifth phoneme alteration to signify the regressive assimilation process is stop bilabial /b/ into fricative labiodental /v/ as followed by /v/. It is found in the word *obviously*, which is phonetically transcribed and faithfully pronounced as /'ɒb.vi.ə.sli/ but the speaker eases the pronunciation to be /'ɒv.vi.ə.sli/. The feature matrix is shown below:

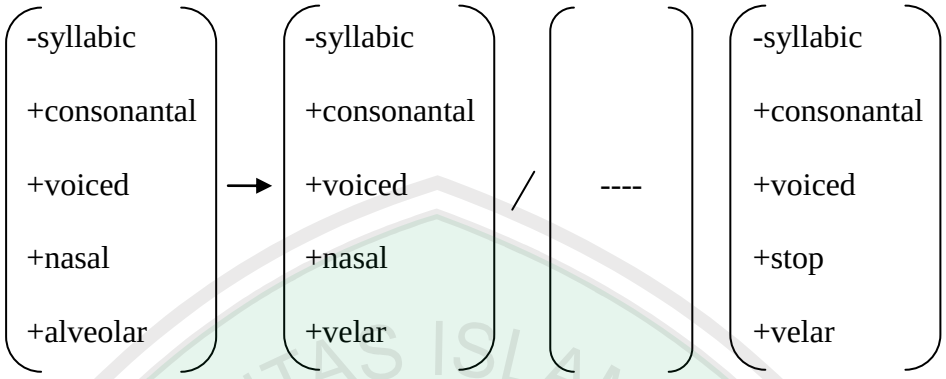
Obviously /'ɒ**b.v**i.ə.sli/ → /'ɒ**v.v**i.ə.sli/ → /'ɒ**v**i.ə.sli/

-syllabic		-syllabic				-syllabic
+consonantal		+consonantal				+consonantal
+voiced	→	+voiced	/	----		+voiced
+stop		+fricative				+fricative
+bilabial		+labiodental				+labiodental

/b/, which has the features voiced, stop, and bilabial, assimilates fully into /v/, which is voiced, fricative, and labiodental consonant. The earlier phoneme takes fricative and labiodental features of the latter phoneme. Therefore, the sound produced is /v/ instead of /b/.

Sixth, the assimilation process is identified with the alteration of nasal alveolar /n/ into nasal velar /ŋ/ as followed /g/. It occurs in the phrase *can get*, which is phonetically transcribed and faithfully pronounced as /kæn get/. Nevertheless, the speaker pronounced /kæŋ get/. The feature matrix is:

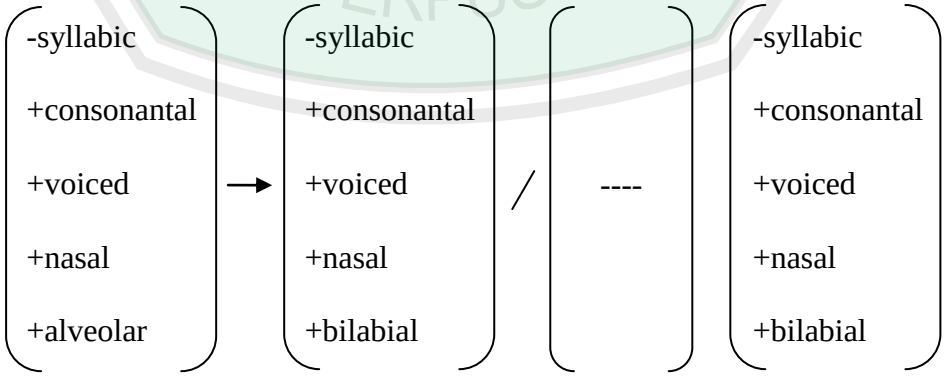
Can get /kæ**n** **g**et/ → /kæ**ŋ** **g**et/



/n/, which has the features, voiced, nasal, and alveolar, assimilates partially into /g/, which is voiced, stop, and velar. /n/ takes only the velar feature of /g/ within the process. Consequently, the sound produced for the compensation of /n/ is /ŋ/.

The next alteration found for this process is nasal alveolar /n/ into nasal bilabial /m/ as followed by bilabial /m/. It occurs in the phrase *Iron Man*. This phrase is phonetically transcribed and faithfully pronounced as /ˈaɪrn mæn/, but the speaker pronounces /ˈaɪrm mæn/. The feature matrix can be drawn as:

Iron Man /ˈaɪr**n** **m**æn/ → /ˈaɪr**m** **m**æn/



/n/, which has the features, voiced, nasal, and alveolar, assimilates fully into /m/, which is voiced, nasal, and bilabial consonant. The earlier phoneme is

only taking the bilabial feature of the latter phoneme in the process. Hence, the phoneme produced is /m/ instead of /n/.

Last, the phoneme alteration found dealing with assimilation process is liquid /l/ into liquid /r/ as followed by liquid /r/ in exclamation *all right*. This exclamation is phonetically transcribed and faithfully pronounced as /ɔːl raɪt/, but the speaker pronounces it /ɔː raɪt/.

All right /ɔː**l** raɪt/ → /ɔː**r** **r**aɪt/ → /ɔː **r**aɪt/

-syllabic		-syllabic				-syllabic	
+consonantal	→	+consonantal	/	----		+consonantal	
+voiced		+voiced				+voiced	
+liquid		+liquid				+liquid	
+alveolar		+alveolar				+alveolar	

/l/ in the first syllable, /ˈɔːl/, which is featured as voiced, liquid, and alveolar, assimilates fully into /r/, which has the same consonant feature. For that encounter, the sound produced for the compensation of /l/ is /r/.

b) Progressive Assimilation

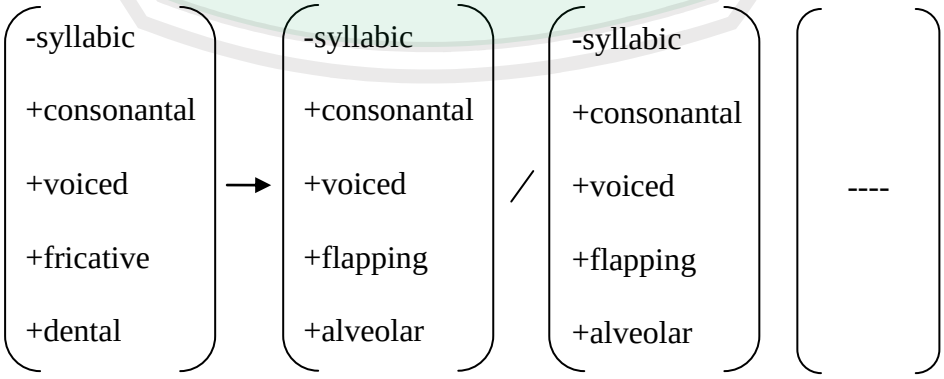
Progressive assimilation applies for 22 words and phrases with 6 phoneme alterations in the film. This process is presented in each sample of the phoneme alteration below:

Table 3.2 words and phrases featured with progressive assimilation

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme encounters	Phoneme alterations
1.	Shut them	/ʃʌt ðem/	/ʃʌɾem/	/t/ enc. /ð/	/ð/ into /ɾ/
	Did that	/dɪd ðæt/	/dɪɾæt/	/d/ enc. /ð/	
2.	Even though	/ˈiːvən ðəʊ/	/ˈiːvən nəʊ/	/n/ enc. /ð/	/ð/ into /n/
	Plenty	/ˈplenti/	/ˈpleni/	/n/ enc. /t/	/t/ into /n/
	Pathfinder	/ˈpæθˌfaɪnd ər/	/ˈpæθˌfaɪnər/	/n/ enc. /d/	/d/ into /n/
3.	Over him	/ˈəʊvə(r) hɪm/	/ˈəʊvər ɪm/	/r/ enc. /h/	/h/ into /r/
4.	Does spin	/dʌz spɪn/	/dʌz zpɪn/	/z/ enc. /s/	/s/ into /z/

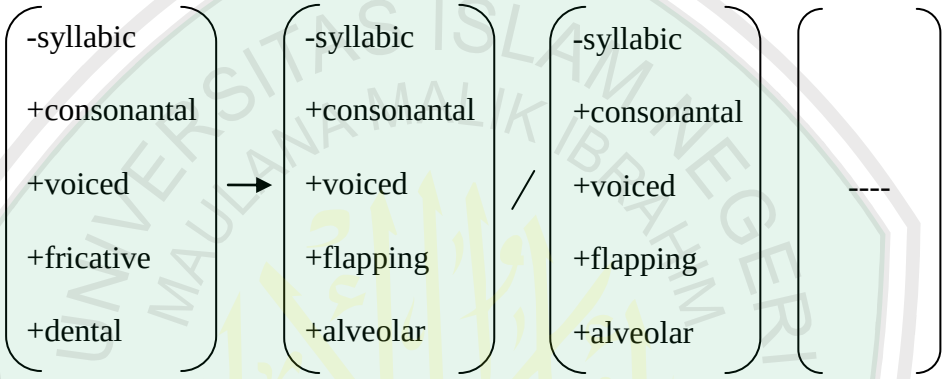
In the table above, the alteration of phoneme signifying the progressive assimilation is, first, voiced /ð/ into voiced flapping /ɾ/. /ð/ is converted into /ɾ/ as preceded by alveolar stop /t/ and /d/, which are flapped. It is found in the phrases *shut them* and *did that*. These phrases are phonetically transcribed and faithfully pronounced as /ʃʌt ðem/ and /dɪd ðæt/ respectively. Nevertheless, the speaker modifies them as /ʃʌɾem/ and /dɪɾæt/. In the feature matrix, the phrases are drawn as:

Shut them /ʃʌ**t ð**em/ → /ʃʌ**t t**em/ → /ʃʌ**ɾ**em/



/ð/, which is characterized as voiced, fricative, and dental, assimilates fully into flapping /ɾ/, which is voiced, flapping, and alveolar. The latter phoneme is taking the whole features of the earlier phoneme. Consequently, the phoneme articulated for the compensation of /ð/ is flapping /ɾ/.

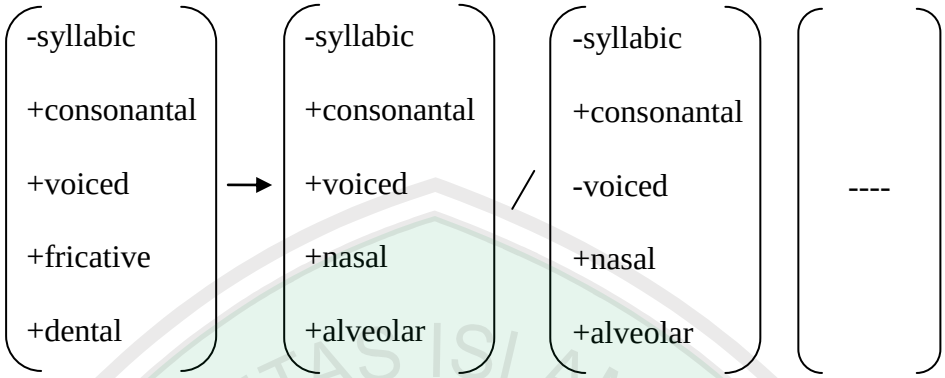
Did that /dɪ**d ð**æt/ → /dɪ**d d**æt/ → /dɪ**ɾ**æt/



/ð/, which is featured as voiced, fricative, and dental, assimilates fully into flapping /ɾ/, which has the features, voiced, flapping, and alveolar. The latter phoneme is taking both manner and place of articulation features of the earlier phoneme. Consequently, the sound articulated for the compensation of /ð/ is /ɾ/.

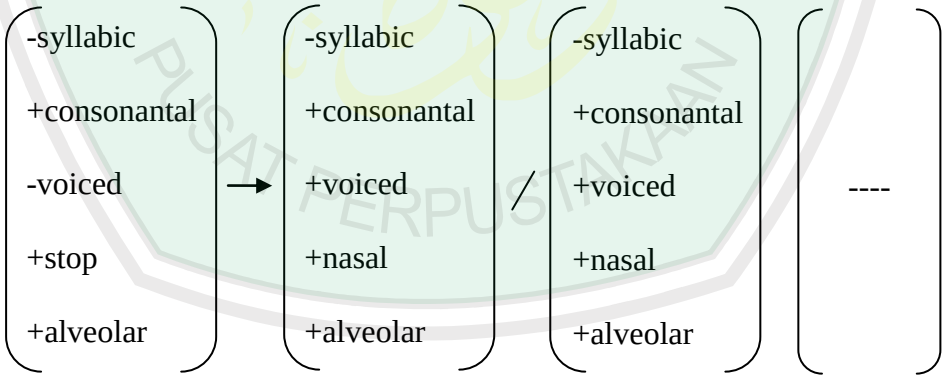
Second, the alteration of phoneme found for this process is fricative dental /ð/ and stop alveolar /t/ and /d/ into nasal alveolar /n/ as preceded by /n/, as found in *even though*, *plenty*, and *pathfinder*. Three of them is phonetically transcribed and faithfully pronounced as /ˈiːvən ðəʊ/, /ˈplenti/, /ˈpæθˌfaɪndər/. However, they are modified into /ˈiːvənəʊ/, /ˈpleni/, /ˈpæθˌfaɪnər/. The alterations are disentangled in the following feature matrices:

Even though /ˈiː.və**n ð**əʊ/ → /ˈiː.və**n n**əʊ/ → /ˈiː.və**n**əʊ/



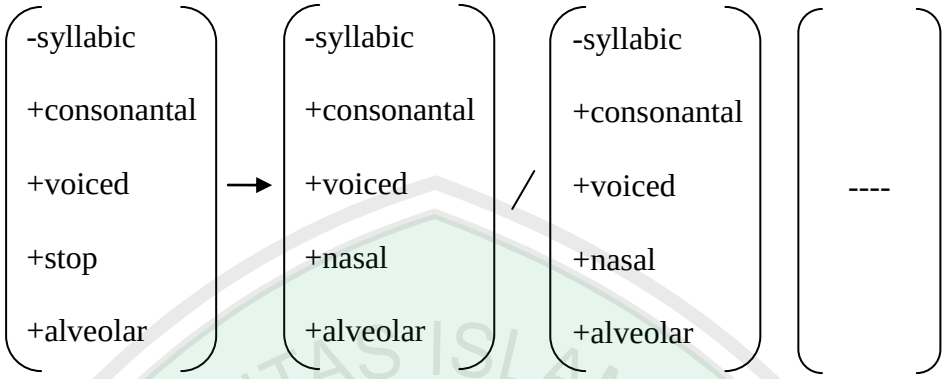
/ð/, which is featured as voiced, fricative, and dental, assimilates fully into /n/, which has the features, voiced, nasal, and alveolar. Ultimately, the sound articulated for the compensation of /ð/ is /n/. The latter phoneme is taking both manner and place of articulation features of the earlier phoneme. Consequently, the phoneme articulated for the compensation of /ð/ is /n/.

Plenty /ˈple**n.t**i/ → /ˈple**nn**i/ → /ˈple**n**i/



/t/, which is characterized as voiceless, stop, and alveolar, assimilates fully into /n/, which has the features, voiced, nasal, and alveolar. The latter phoneme is taking the nasal and voiced features of the earlier phoneme. Therefore, the phoneme produced for the compensation of /t/ is /n/.

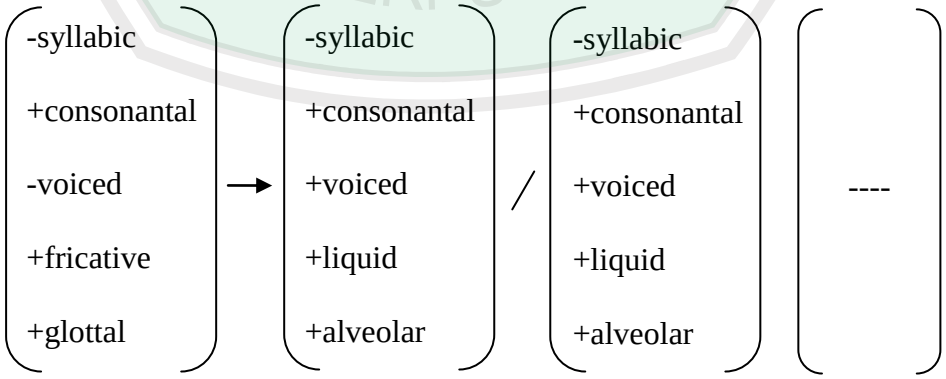
Pathfinder /ˈpæθˌfaɪ**nd**ər/ → /ˈpæθˌfaɪ**n**ər/



/d/, which is characterized as voiced, stop, and alveolar, assimilates fully into /n/, which has the features, voiced, nasal, and alveolar. The latter phoneme takes only the nasal feature of the earlier phoneme. Consequently, the sound produced for is /n/ instead of /d/.

Third, this process is also signified with the alteration of glottal /h/ into any preceding consonants. It, for instance, occurs after /r/, as in the phrase *over him*. This phrase is pronounced /ˈəʊvə(r) hɪm, but the speaker modifies it to be /ˈəʊvər ɪm/. Below is the feature matrix of the phrase:

Over him /ˈəʊvə**(r) h**ɪm/ → /ˈəʊvə**r** ɪm/



/h/, which is featured as voiceless, fricative, and glottal, assimilates fully into /r/ which is voiced, liquid, and alveolar consonant. /h/ is taking all the feature of preceding consonant, in this case, /r/. Therefore, the phoneme produced for the compensation of /h/ is /r/.

Four, the alteration of voiceless alveolar /s/ into voiced alveolar /z/ is the last process of progressive assimilation found within the character's speech. It occurs in the phrase *does spin*. This phrase is phonetically transcribed and faithfully pronounced as /dʌz spɪn/, but it changes into /dʌz zpɪn/. The alteration is drawn in feature matrix as:

Does spin /dʌ**z** **s**pɪn/ → dʌ**z** **z**pɪn/

-syllabic		-syllabic	/	-syllabic		
+consonantal		+consonantal		+consonantal		
-voiced	→	+voiced		+voiced		----
+fricative		+fricative		+fricative		
+alveolar		+alveolar		+alveolar		

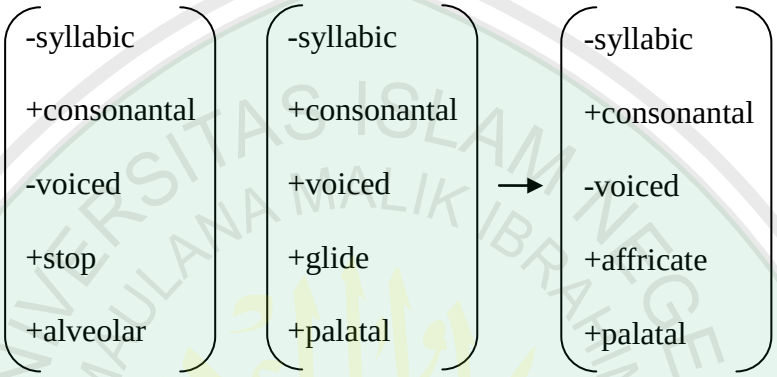
/s/, which is featured as, voiceless, fricative, and alveolar, assimilates fully into /z/, which has the same place and manner of articulation but voiced feature. The latter phoneme, /s/, is influenced by the earlier phoneme, /z/, to possess the voiced feature. Hence, the sound articulated for the compensation of /s/ is /z/.

c) Reciprocal Assimilation

This type of assimilation is only found in the phrase *get you.* The speech produced by the character is identified as /getʃu/ while this phrase should be

pronounced /get ju/ based upon their phonetic transcription in the dictionary. Thus, mutual influence between stop alveolar /t/ and glide palatal /j/ results the new phoneme, /tʃ/. As described in the following feature matrix:

Get you /ge**t** **j**u/ → /ge**tʃ**u/



/t/, which is featured as voiceless, stop, and alveolar, and /j/ which is voiced, glide, and palatal assimilates into each other to finally produce the new phoneme /tʃ/ with the features, voiceless, affricate, and palatal. /tʃ/ is produced by taking the voiceless feature from the earlier phoneme, and palatal feature from the latter phoneme.

3.1.1.2 Dissimilation

Dissimilation process occurs in "The Martian" film is amounted to 4 words only. The data are compiled below:

Table 3.3 words featured with dissimilation

No	Words/ Phrases	Phonetically transcribed	The speech produced	The phoneme recurred
1	Report	/rɪˈpɔːrt/	/rɪˈpɔːt/	/r/ in a stressed syllable
2	Armstrong	/ˈɑːrmˌstrɑŋ/	/ˈɑːmˌstrɑːŋ/	/r/ in a stressed syllable
3	Order	/ˈɔːrdər/	/ˈɔːdər/	/r/ in a stressed syllable
4	Surprise	/sərˈpraɪz/	/səˈpraɪz/	/r/ in an unstressed syllable

Table 3.3 above shows that dissimilation process only occurs in words with /r/ occurrence. This process is found to arise in stressed and unstressed syllables. The first three of the words are identified to happen in stressed syllables, while the rest one is in unstressed syllable.

Dissimilation process in stressed syllable is, first, found in the word *report.* This word is pronounced /rɪˈpɔːt/ in the film, and not /rɪˈpɔːrt/ as phonetically transcribed in the dictionary. The speaker prefers to omit /r/ in the second syllable, which is stressed syllable. Based upon the rule of dissimilation, /r/ might be omitted since it is not occurring after stressed syllable as well as before velar consonant /k/, /g/, or /ŋ/.

Report /rɪˈpɔːrt/ → /rɪˈpɔːt/

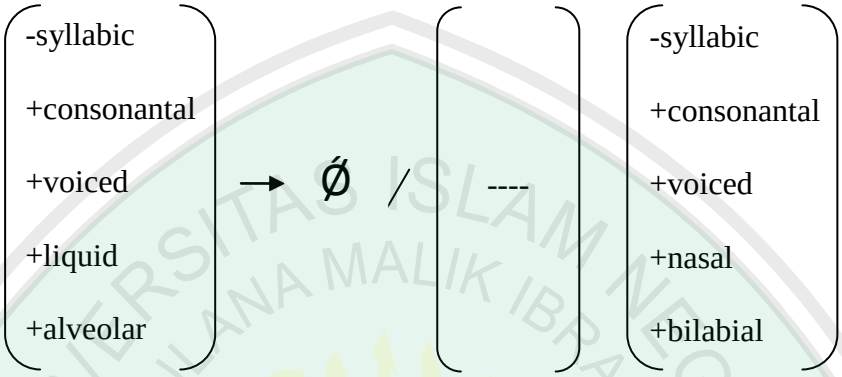
$$\begin{bmatrix} -\text{syllabic} \\ +\text{consonantal} \\ +\text{voiced} \\ +\text{liquid} \\ +\text{alveolar} \end{bmatrix} \rightarrow \emptyset \; / \; \begin{bmatrix} \text{----} \end{bmatrix} \begin{bmatrix} -\text{syllabic} \\ +\text{consonantal} \\ -\text{voiced} \\ +\text{stop} \\ +\text{alveolar} \end{bmatrix}$$

/r/ in the syllable /ˈpɔːrt/ is occurring in the stressed syllable, consisting of long vowel /ɔː/, and before alveolar consonant /t/. /r/, which is featured as voiced, liquid, and alveolar, dissimilates into /t/, which is voiced, stop, and alveolar in order to avoid taking the features of the following phoneme, /t/, by being concealed.

Likewise, second, the words *Armstrong* is pronounced as /ˈɑːmˌstrɑːŋ/, and not /ˈɑːrmˌstrɑːŋ/. The speaker found omitting /r/ in the first syllable. /r/ in

this syllable might be omitted since it is not occurring after stressed syllable and before velar consonant /k/, /g/, or /ŋ/ in accordance with dissimilation rules.

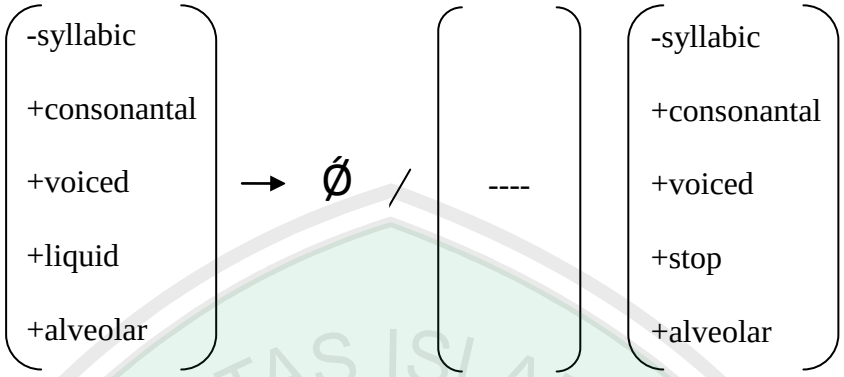
Armstrong /ˈɑːɹmˌstrɑŋ/ → /ˈɑːmˌstrɑːŋ/



/r/ in the first syllable, /ˈɑːrm/, is occurring within the stressed syllable, consisting of long vowel /ɑː/, and before bilabial consonant /m/. /r/, which has the features, voiced, liquid, and alveolar, dissimilates into /m/, which is voiced, nasal, and bilabial in order to avoid taking the features of the following phoneme, /m/, by being concealed.

Third, the pronunciation of the word of the word *order,* which should be /ˈɔːrdər/, is modified into /ˈɔːdər/. The speech produced has omitted /r/ in the first syllable. In accordance with the dissimilation rules, it is allowed for that /r/-omission due to it is not occurring after stressed syllable and before velar consonant /k/, /g/, or /ŋ/.

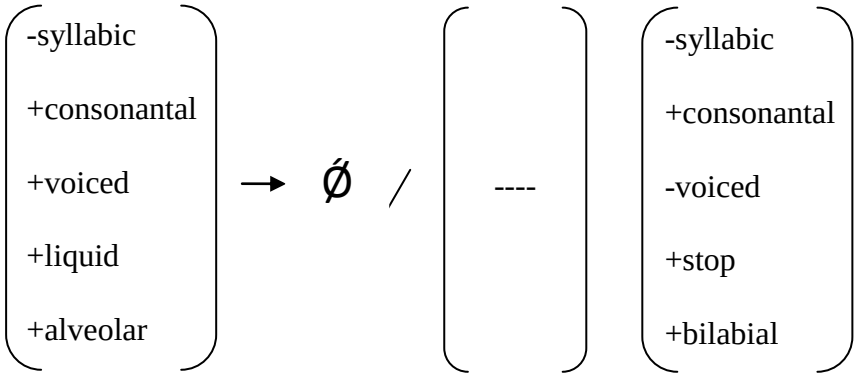
Order /ˈɔːrdər/ → /ˈɔː.dər/



/r/ in the first syllable, /ˈɔːr/, is occurring within the stressed syllable, consisting of long vowel /ɔː/, and before alveolar consonant /d/. /r/, which has the features, voiced, liquid, and alveolar, dissimilates into /d/, which is voiced, stop, and alveolar in order to avoid taking the features of the following phoneme, /d/, by being vanished.

Meanwhile, dissimilation process in unstressed syllables is only found in the word *surprise*. The speaker pronounces it as /səˈpraɪz/, which should be actually pronounced as /sərˈpraɪz/. It does not matter to have the first /r/ omitted since it is not occurring after stressed syllable as well as before velar consonant /k/, /g/, or /ŋ/.

Surprise /sə**r**ˈpraɪz/ → /səˈpraɪz/



/r/ in the first syllable, /sər/, is occurring in the unstressed syllable, which consist of weak and short vowel /ə/. It is also occurring before the stressed syllable, and before bilabial consonant /p/. /r/, which has the features, voiced, liquid, and alveolar, dissimilates into /p/, which is voiceless, stop, and bilabial in order to avoid taking the features of the following phoneme, /p/, by being vanished.

The omission of /r/ within the four words illustrated in the table above is categorizing as dissimilation and not deletion process. It is due to the omission of /r/ is caused by the existence of another /r/ within different syllable (phoneme recurrence) and not under the rules of deletion.

3.1.1.3 Deletion

Deletion process arises in 54 words and phrases. 19 of them constitutes aphaeresis, 19 of them are syncopation, and the other 21 are apocopation. The data for deletion are compiled and analyzed respectively based upon its terminological categorization, that is, aphaeresis, syncopation, and apocopation.

a) Aphaeresis

Aphaeresis process arises in the same number of data as the syncope, 19 phrases. The followings are the samples of words and phrases taken for identification.

Table 3.4 phrases featured with aphaeresis

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme(s) deleted	Morphologically written
1	Let us	/let ʌs/ or /let əs/	/lets/	/ʌ/ or /ə/	Let’s
2	You are	/jʊ ɑːr/ /jʊ ər/	/jʊr/	/ɑː/ or /ə/	You’re

3	We have	/wi hæv/ or /wi həv/	/wiv/	/h/ and /æ/ or /ə/	We've
4	I would	/aɪ /wʊd/ or /aɪ /wəd/	/aɪd/	/h/ and /ʊ/ or /ə/	I'd

The data on the process of aphaeresis above comprises contracted forms as they morphologically possess short forms of words. *Let us* and *we have*, for instance, are shortened as *let's* and *we've*. The whole phrases above are phonologically considered as featured by aphaeresis process because the loss of a phoneme or phonemes is occuring in the initial parts of the words, such as, *us* /ʌs/ or /əs/ and *are* /ɑːr/ or /ər/ pronounced as /s/ and /r/. Both of the words are losing one phoneme, that is, /ʌ/ or /ə/ in *us* and /ɑː/ or /ə/ in *are*. Whereas the last two samples of data are found to lose two phonemes, /h/ and /æ/ or /ə/ in *have*, and /w/ and /ʊ/ or ə/ in *would*. As described in the following feature matrices:

Let us → let's

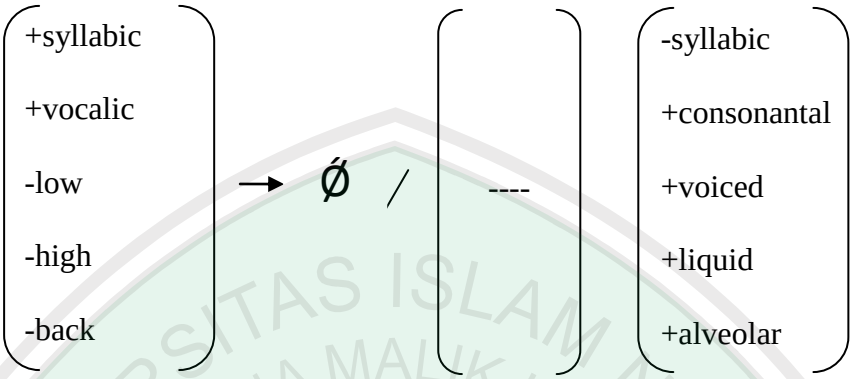
/le**t** **ə**s/ → /lets/

+syllabic +vocalic -low -high -back	→	Ø	/	-syllabic +consonantal -voiced +stop +alveolar	----

The loss of vowel /ə/, in this phrase above, occurs in the initial phoneme of *us* /əs/ and and the phrase above is included in contracted forms.

You are → you’re

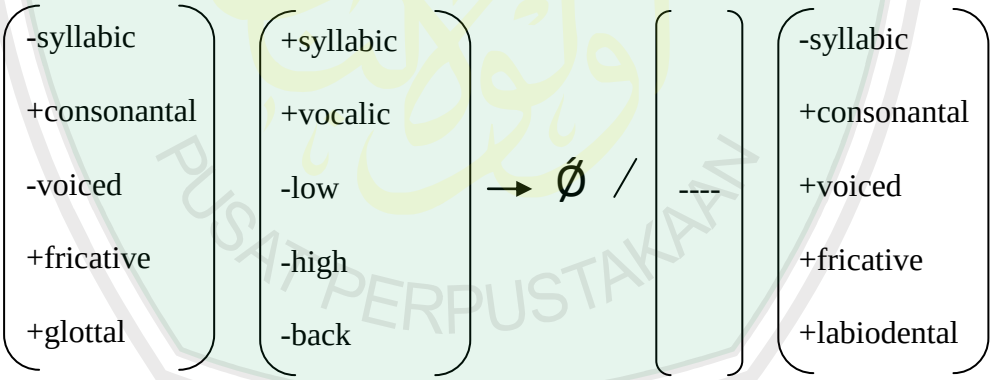
/jʊ **ər**/ → /jʊr/



are /ər/ above is losing its initial phoneme, /ə/, and the phrase above is a contracted form.

We have → we’ve

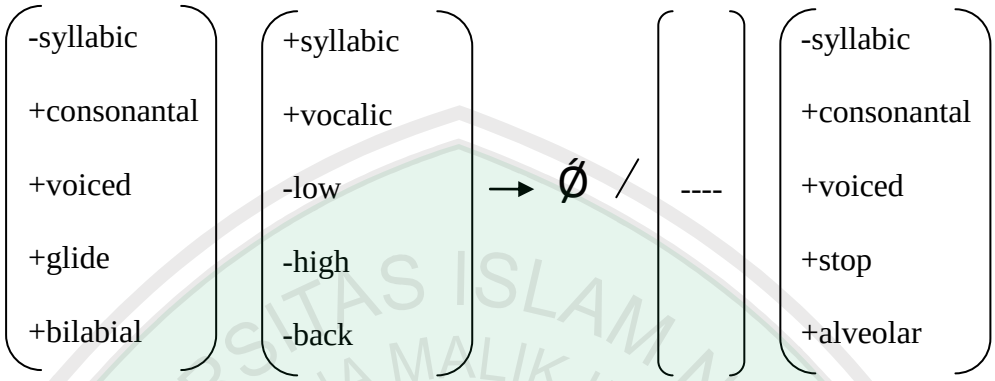
/wi **hə**v/ → / wiv/



The loss of vowel /h/ and /ə/ are occurring in the initial part of the syllable /həv/, and the phrase is included in contracted forms.

I would → I'd

/aɪ **wə**d/ → / aɪd/



Likewise, the loss of vowel /w/ and /ə/ are occurring in the initial part of the syllable /wəd/, and the phrase is included in contracted forms.

The process the phoneme or phonemes loss above can be associated with several rules of syncopation (the next process of deletion). Those four samples above are also deliberately analyzed in separation as they have different patterns in syncopation. Nonetheless, it will be elaborated in discussion section.

b) Syncopation

This type of deletion process applies for 19 words and phrases in three of its rules. The followings are the samples of words and phrases in each rules utilized for the syncope process.

Table 3.5 words and phrases featured with syncopation

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme(s) deleted
1.	Today	/təˈdeɪ/	/tdeɪ/	/ə/
2.	Personal	/ˈpɝːrsənəl/	/ˈpɝːrsnl/	/ə/
3.	Months	/mʌnθs/	/mʌnz/	/θ/
4.	Shouldn't have	/ˈʃʊdənt hæv/	/ˈʃʊdn hæv/	/ə/ and /t/

Table 3.4 reveals briefly how an interior phoneme is elided in a word found in The Martian's characters speech. The process of syncopation is found to arise in the whole rules of the process, weak vowels after voiceless stop consonants, /p/, /t/, and /k/, weak vowels before the syllabic consonants, /l/, /m/, /n/, and occasionally /r/, and consonant clusters.

The loss of weak vowels occurring after voiceless stop consonants, /p/, /t/, and /k/, is found in the word *today* /tˈdeɪ/. This word is phonetically transcribed and faithfully pronounced as /təˈdeɪ/ but the speaker ignores /ə/ in the first syllable. To know the process of syncope, it can be looked at the feature matrix of that word below.

Today /**tə**ˈdeɪ/ → /tˈdeɪ/

+syllabic +vocalic -low -high -back	→	Ø	/	-syllabic +consonantal +voiced +stop +alveolar	----

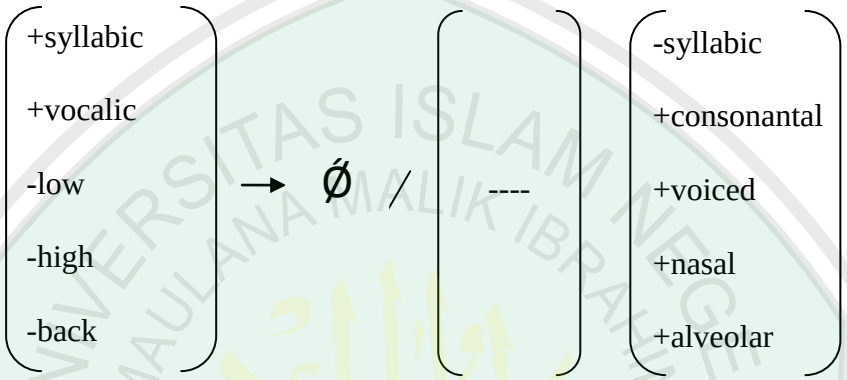
The position of vowel /ə/, schwa, as the weak vowel in the word, with the features, middle and central, occurs after voiceless stop consonant /t/. Hence, it is applicable to elide /ə/ when the speaker pronounces the word in rapid condition.

The loss of weak vowels occurring before syllabic consonants, /l/, /m/, /n/, and /r/ is also obtained from speech produced by The Martian's characters, as in *personal* /ˈpɝːrsnl/. This word is phonetically transcribed and faithfully

pronounced as /ˈpɝːrsənəl/ but the speaker pronounces as /ˈpɝːrsnl/ by eliding two schwas in the second and third syllable. The feature matrix is drawn as:

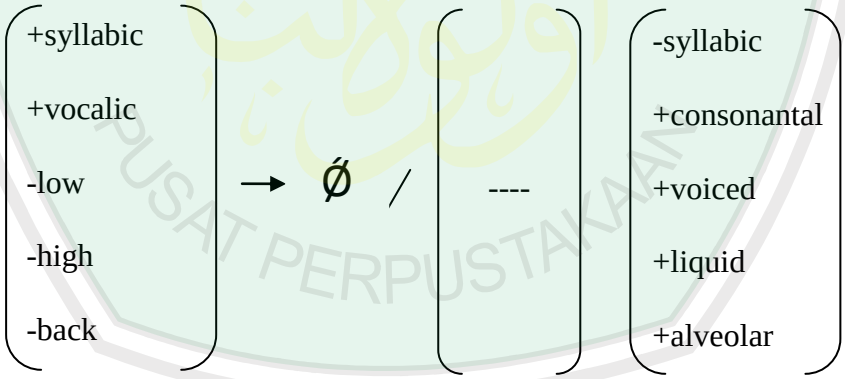
The first /ə/, in the syllable /sən/:

Personal /ˈpɝːrsə**n**əl/ → /ˈpɝːrs**n**l/



The second /ə/, in the syllable /nəl/:

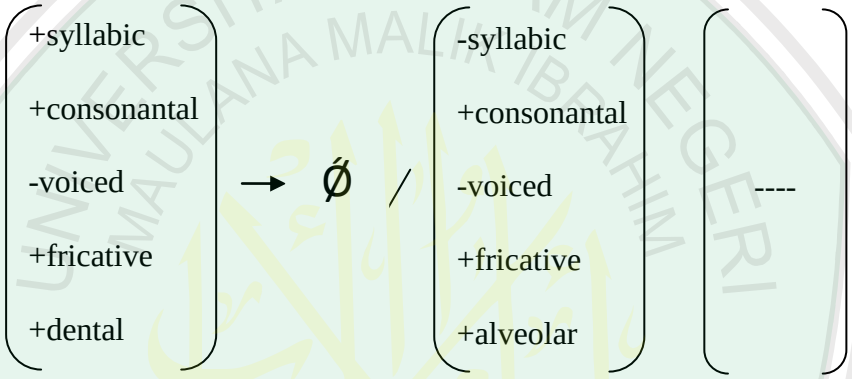
Personal /ˈpɝːrsən**ə**l/ → /ˈpɝːrsn**l**



In this word, the weak vowel schwa, /ə/, with the features, middle and central exists twice. First, it occurs in the second syllable, /sən/, after /n/, and second, in the third syllable after /l/. Since both of the phonemes after /ə/ are syllabic consonants, it is plausible to be elided to make more economical pronunciation when speaking rapidly.

The syncopation process for the loss of phoneme within consonant clusters is identified in the word *months*. This word is phonetically transcribed and faithfully pronounced as /mʌnθs/, but the speech produced is identified as /mʌnz/. It signifies that the speaker elides the phoneme /θ/ before the last phoneme /z/. The feature matrix is drawn as follows:

Months → /mʌn**θ**s/ → /mʌnz/



/θ/ in this word is elided due to the pattern of consonant cluster is considered as complex. Therefore, it is better to ignore that phoneme in the pattern of such a word in order to ease articulation.

The second and third rules are also found to occur in one word, as in a contracted form *shouldn't,* which is pronounced as /ˈʃʊdn/ in the film, and not /ˈʃʊdənt/ based on the phonetic transcription in the dictionary. The schwa occurring before /n/ is elided as well as /t/ in the last phoneme.

c) Apocopation

The process of apocopation occurring in the film is amount to 21 words and phrases. The samples are presented in the following table:

Table 3.6 words and phrases featured with apocopation

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme(s) deleted
1	Almost zero	/ˈɑːl.moʊst ˈzɪr.oʊ/	/ˈɑːl.moʊs ˈzɪr.oʊ/	/t/
2	Second I	/ˈsekənd aiː/	/ˈsekən aiː/	/d/
3	Sixth	/sɪksθ/	/sɪks/	/θ/

Table 3.6 shows several words in which the final phoneme or phonemes are not pronounced in “The Martian” film. The loss of these phonemes in the words and phrases above are found in the three criteria of apocopation, that is, stop alveolar consonant occurring in the final phoneme that is linked to another consonant, the final phoneme of weakly stressed syllables, and the final phoneme of complex consonant clusters.

The loss of stop alveolar consonant clusters, /t/ and /d/ occurs in the word *almost zero* that is pronounced as /ˈɑːl.moʊs ˈzɪr.oʊ/ while phonetically transcribed as /ˈɑːl.moʊst ˈzɪr.oʊ/. It indicates the loss of the earlier consonant phoneme in both of the words encounter as drawn in the feature matrix that follows.

Almost zero /ˈɑːl.moʊs**t** ˈzɪr.oʊ/ → /ˈɑːl.moʊs ˈzɪr.oʊ/

$$\begin{bmatrix} +\text{syllabic} \\ +\text{consonantal} \\ -\text{voiced} \\ -\text{stop} \\ -\text{alveolar} \end{bmatrix} \rightarrow \emptyset \; / \; \begin{bmatrix} \text{----} \end{bmatrix} \; \begin{bmatrix} -\text{syllabic} \\ +\text{consonantal} \\ +\text{voiced} \\ +\text{fricative} \\ +\text{alveolar} \end{bmatrix}$$

/t/ in this phrase is elided by the speaker as it is stop alveolar final phoneme in two final consonant clusters that is directly followed by the consonant /z/.

Meanwhile, the loss of final phoneme of weakly stressed syllable consonant clusters is found in *second I*. It is pronounced as /ˈsekənd ai/ in its phonetic transcription, but the speaker prefers to elide the phoneme /d/, hence, it is pronounced as /ˈsekən ai/. It signifies the loss of the earlier consonant phoneme in both of the words encounter as drawn in the feature matrix below.

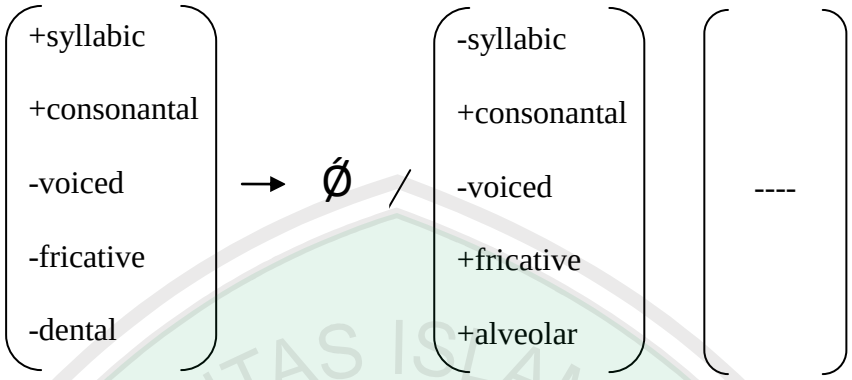
Second I /ˈsekən**d** ai/ → /ˈsekən ai/

+syllabic +consonantal +voiced -stop -alveolar	→	Ø	/	---- 	-syllabic +consonantal +voiced +glide +bilabial

/d/ in this phrase is elided by the speaker as it constitutes the final phoneme of weakly stressed syllable of *second* with the strong stressed in the first syllable.

Lastly, the loss of final phoneme of complex consonant clusters is found in the word *sixth* /sɪks/. This word is phonetically transcribed and faithfully pronounced as /sɪksθ/, but it is found to be pronounced as /sɪks/. It signifies that the character elides the last phoneme in that pattern of consonant clusters as drawn in the feature matrix below:

Sixth /sɪks**θ**/ → /sɪks/



/θ/ in this word is elided due to the pattern of consonant cluster is considered as complex. Therefore, it is better to ignore the last consonant to ease production of the word, even when connected to another word that follows.

The second objective of this study is to identify to what extent the case of phonological rules applied by the characters of "The Martian" film in their speech.

3.1.2 The case of the phonological rule application

3.1.2.1 Assimilation

The first type is assimilation process. It is still split up into 3 processes, regressive, progressive and reciprocal assimilation. The first process, regressive assimilation, encompasses 8 patterns of phoneme alteration that can be termed as:

a) Labialization of stop consonant /t/.

Whenever alveolar consonant /t/ is followed by a labial consonant either bilabial or labiodental, its place of articulation is changed into labial as well. The rule for this pattern can be formulated as:

[+stop] → [+stop][+labial] / _____ C

|

[+labial]

E.g. *Abort procedure* /əˈbɔːt prəˈsiːdʒər/ becomes /əˈbɔːp prəˈsiːdʒər/.

b) Dentalization and fricatization of stop alveolar consonant /t/.

Whenever stop alveolar consonant /t/ is followed by a dental consonant, its place of articulation is changed into dental as well as its manner of articulation is changed into fricative. In this film, the pattern of phoneme alteration found is /t/ into /ð/. The rule for this pattern can be formulated as:

[+stop][+alveolar] → [+fricative][+dental] / _____ C

|

[+fricative][+dental]

E.g. *it that* /ɪt ðæt/ becomes /ɪð ðæt/.

c) Devoicing of voiced alveolar /d/.

Whenever voiced consonant /d/ is followed by a voiceless dental consonant, it is voiceless as well. In this film, the pattern of phoneme alteration found is /d/ into /t/. The rule for this pattern can be formulated as:

[+voiced] → [+voiceless][+alveolar] / _____ C

|

[+voiceless][+alveolar]

E.g. *standard time* /ˈstændərd taɪm/ becomes /ˈstændərt taɪm/

d) Velarization of stop consonant /d/

Whenever stop consonant /d/ is followed by a velar consonant, its place of articulation is changed into velar as well. In this film, the pattern of phoneme alteration found is /d/ into /k/. The rule for this pattern can be formulated as:

[+alveolar] →[+velar] / _____ C
                          |
                      [+velar]

E.g. *good kick* becomes /gʊd kɪk/ becomes /gʊk kɪk/.

e) Fricatization of stop labial /b/.

Whenever stop labial /b/ is followed by a fricative labiodental consonant, its manner of articulation is changed into fricative as well. In this film, the pattern of phoneme alteration found is /b/ into /v/. The rule for this pattern can be formulated as:

[+stop][+bilabial] → [+fricative] / _____ C
                                    |
                                [+fricative]

E.g. *obviously* /'ɒb.vi.ə.sli/ becomes /'ɒv.vi.ə.sli/

f) Velarization of nasal consonant /n/

Whenever nasal consonant /n/ is followed by a velar consonant, its place of articulation is changed into velar as well. In this film, the pattern of phoneme alteration found is /n/ into /ŋ/. The rule for this pattern can be formulated as:

[+nasal] →[+nasal][+velar] / _____ C

|

[+nasal][+velar]

E.g. *I can get* /kæn get/ becomes /kæŋ get/

g) Labialization of nasal consonant /n/

Whenever nasal consonant /n/ is followed by a labial consonant, either bilabial or labiodental, its place of articulation is changed into labial as well. In this film, the pattern of phoneme alteration found is /n/ into /m/. The rule for this pattern can be formulated as:

[+nasal] →[+nasal][+labial] / _____ C

|

[+nasal][+bilabial]

E.g. *Iron Man* /ˈaɪrn mæn/ becomes /ˈaɪrm mæn/

h) Rhoticity of lateral consonant /l/

Whenever lateral consonant /l/ is followed by the alveolar consonant /r/, its manner of articulation is changed into rhotic /r/. The rule for this pattern can be formulated as:

[+lateral] → [+rhotic] / _____ C

|

[+rhotic]

E.g. *all right* /ɔːl raɪt/ becomes /ɔːr raɪt/

Meanwhile, the second process, progressive assimilation, encompasses 4 patterns of phoneme alteration that can be termed as:

a) Flapping of dental consonant /ð/.

Whenever dental consonant /ð/ is preceded by consonant /t/ and /d/, it alters into a flap. In this film, the pattern of phoneme alteration found is /ð/ into /ɾ/. The rule for this pattern can be formulated as:

[+dental] →[+flap] / C _____

[+flap]

E.g. *shut them* /ʃʌt ðem/ becomes /ʃʌɾem/

b) Nasalization of dental consonant /ð/

Whenever dental consonant /ð/ is preceded by nasal /n/, its manner of articulation is changed into nasal as well. In this film, the pattern of phoneme alteration found is /ð/ into /n/. The rule for this pattern can be formulated as:

[+dental] →[+nasal][+alveolar] / C _____

[+nasal][+alveolar]

E.g. *even though* /ˈiː.vən ðəʊ/ becomes /ˈiː.vən nəʊ/

c) Nasalization of alveolar /t/ and /d/.

Whenever stop alveolar consonants /t/ and /d/ are preceded by nasal /n/, their manners of articulation are changed into nasal as well. In this film, the pattern of

phoneme alteration found is /t/and /d/ into /n/. The rule for this pattern can be formulated as:

[+alveolar] →[+nasal][+alveolar] / C _____

[+nasal][+alveolar]

E.g. *plenty* /ˈplenti/ becomes /ˈpleni/ and *pathfinder* /ˈpæθˌfaındər/ becomes ˈpæθˌfaınər/.

d) Liquidation of glottal consonant /h/

Whenever glottal consonant /h/ is preceded by any consonant, it alters into the preceding consonant features. In this film, the pattern of phoneme alteration found is /r/, /t/, and /ð/ into /h/. The rule for this pattern can be formulated as:

[+glottal] →[+any features] / C _____

[+any features]

E.g. *over him* /ˈəʊvər hım/ becomes /ˈəʊvər ım/, *get him* /get hım/ becomes /get ım/.

e) Voicing of voiceless alveolar /s/

Whenever voiceless alveolar consonant /s/ is preceded by voiced alveolar consonant, it is voiced as the preceding consonant. In this film, the pattern of phoneme alteration found is /s/ into /z/. The rule for this pattern can be formulated as:

[+voiceless][+alveolar] → [+voiced][+alveolar] / C
                                                  |
                                  [+voiced][+alveolar]

E.g. *does spin* / dʌz spɪn/ becomes /dʌz spɪn/.

The third process, reciprocal assimilation only occurs in the encounter of /t/ and /j/ which is mutually resulting the phoneme /tʃ/. The rule can be termed as palatalization of the mutual consonants /t/ and /j/. It is formulated as:

[+stop][+alveolar] [+glide][+palatal] → C _____
                                                |
                                  [+affricative][+palatal]

E.g. *get you* /get ju/ becomes /getʃu/.

3.1.2.2 Dissimilation

On the second type, dissimilation process, the investigation only results 1 pattern of phoneme within the character's speech, that is, /r/ recurrence. The pattern occurs in stressed and unstressed syllables. Dissimilation process always arises in the coda of a syllable either stressed or unstressed. However, for the rule of stressed syllables, /r/ is omitted after long vowels, as in *Armstrong* /ˈɑːmˌstrɑːŋ/, whereas for unstressed syllables, /r/ is omitted after short and weak vowel, such as the schwa in the word *surprise* /səˈpraɪz/.

Along with the investigation under the words spoken in the film dialogue, it is surprisingly rare to find words patterned with a recurred phoneme. Thus, the dissimilation process is found in low number and frequency of words. It cannot be judged that the characters, as the native speakers, attempt not to produce the

words constructed in repeated phonemes aimed at avoiding their complexity and awkwardness because the characters' speech or dialogues are written in the film screenplay. This process is still considered to considerably applied in speaking practice since almost all of the words with recurred phoneme are modified with dissimilation process in "The Martian" film.

3.1.2.3 Deletion

The deletion process is categorized into three distinctive terminologies, that is, aphaeresis, syncopation, and apocopation. The first process, aphaeresis, as stated in the literary review that the whole contracted forms constitute aphaeresis process. Contracted forms, are very frequent words to utilize in the film characters' speech of "The Martian. Almost all of the words possessing contracted forms are preferred being articulated in the pronunciation of their contracted forms to the original or long forms. *Let us,* for instance, is pronounced as /lets/, *you will* is as /ju:l/, and *we are* is as /wir/. Morphologically, they are often transcribed as *let's*, *you'll*, and *we're* in informal writing. Beside those mentioned contracted forms, there are still plenty of other contracted forms are occupying the characters' speech. At different times, they occur quite frequently that it makes aphaeresis process reach the high number of occurrence.

The second process of deletion dealing with interior phoneme is syncopation. From three rules possessed by syncopation process, the loss of weak vowels after voiceless stop consonants, /p/, /t/, and /k/, weak vowels before syllabic consonants, /l/, /m/, /n/, and occasionally /r/, and consonant clusters, the patterns are found as follows:

a) Elision of week vowels after voiceless stop consonants

When a weak vowel is occurring after a voiceless stop consonant /p/, /t/, or /k/, it tends to be disarticulated. This rule can be formulated as:

[-low][-high][-back] → Ø / C _____
                        |
                [+voiceless][+stop][+alveolar]

E.g. *today* /təˈdeɪ/ becomes /tˈdeɪ/.

b) Elision of week vowels before syllabic consonants

When a weak vowel is occurring before a syllabic consonant, /l/, /m/, /n/, or /r/, it tends to be disarticulated. It is formulated as:

/m/ and /n/:

[-low][-high][-back] → Ø / _____ C
                              |
                          [+nasal]

E.g. *personal* /ˈpɝːrsənəl/ becomes /ˈpɝːrsnəl/

/l/ and /r/:

[-low][-high][-back] → Ø / _____ C
                              |
                          [+liquid]

E.g. *personal* /ˈpɝːrsənl/ becomes /ˈpɝːrsənl/.

c) Elision of a consonant clusters' phoneme /θ/ and /d/

Whenever /θ/ and /d/ occur in consonant clusters as an interior phoneme, it tends to be disarticulated. In the characters' speech of The Martian, the deletion

occurs in *months* /mʌns/ with no articulation of /θ/, and *grounds* /ˈgraʊnz/ with the absence of /d/.

The last process of deletion is apocopation. From the findings compiled, 4 patterns of this process are found to be constituted by their three criteria, the loss of stop alveolar consonants, /t/ and /d/, when being final phoneme of consonant clusters and being linked to another consonant, the final phoneme of weakly stressed syllables, and the final phoneme of complex consonant clusters. The 4 patterns are:

a) Elision of stop alveolar consonants

When the stop alveolar consonants, /t/ and /d/, occur in the final phoneme of consonant clusters and being linked to a word beginning with another consonant. The rule can be written as:

[+stop][+alveolar] → Ø / _____ C
                        |
                  [+consonantal]

E.g. *almost zero* /ˈɑːl.moʊst ˈzɪr.oʊ/ becomes /ˈɑːl.moʊs ˈzɪr.oʊ/

b) Elision of weakly stressed syllable consonants

When a consonant is pronounced as a weakly stressed syllable in the final phoneme, it tends to be deleted, as in *second I* /ˈsekənd ai/ which is produced as /ˈsekən ai/ since /d/ constitutes weakly stressed syllable.

c) Elision of a consonant clusters' fricative /θ/

Whenever fricative /θ/ occurs in consonant clusters as the final phoneme, it tends to be deleted. The rule can be formulated as:

[+fricative][+dental] → Ø / C _____
                              |
                        [+consonantal]

E.g. *sixth* /sɪksθ/ becomes /sɪksθ/.

d) Elision of a consonant clusters' stop alveolar consonants

Whenever stop alveolar consonants, /t/ or /d/, occur in consonant clusters as the final phoneme, it tends to be disarticulated. The following is the rule of the pattern:

[+stop][+alveolar] → Ø / C _____
                              |
                        [+consonantal]

E.g. *world* /wɝːrld/ becomes /wɝːrl/ and physicist /ˈfɪzɪsɪsts/ becomes /ˈfɪzɪsɪs/.

3.2 Discussion

This study is significantly conducted to inspire the non-native speakers to use phonological rules whenever they are speaking English in order to produce smooth, economical, and fluent speech. Investigating the phenomena of English phonological rules in "The Martian" film is designed to exemplify how those rules modify the pronunciation for particularly the L2. The exemplification is presented through two primary research objectives: verifying four types of phonological

rules applied in speech production of the native speakers (L1), in this case, The Martian's characters and identifying to what extent the case of phonological rules applied by those L1 in their speech. The findings suggest that the phonological rules are highly found in L1 speech production.

From the four Lass' (1984) types of phonological rules proposed for investigation, only insertion is found no findings while the other three, assimilation, dissimilation, and deletion, apply for the characters' speech. It is found that the number of words and phrases featured with phonological rules in speech production is quite high in those three types. This fact represents and proves Berg & Hauven (1982) and Azannee & Pilus (2013)'s pronouncement that phonological rules have been much featuring the native speakers' speech. From the data of phonological rules obtained from the film, the most familiar type to apply in the characters' speech or dialogues is deletion or so-called elision. The process of deletion occurs in the highest number of words and phrases compared with the other types proposed, particularly in aphaeresis process, in which it is the process of eliding the initial phoneme of a word. The data for the aphaeresis process, in terms of quantity, is less than progressive assimilation and syncopation. However, in terms of the frequency of occurrence, it is the most frequent of the whole types and subtypes of phonological rules. This indicates that the native speakers, represented by The Martian's characters, are severely applying phonological rules in their speech.

The case of phonological rules is mainly led by *the phonological environments*. Particular segments might change under the influence of the

neighbouring segments or phonemes, as proven by advance findings. The stop consonant /t/, for instance, is labialized when followed by labial consonants in the process of assimilation, as in *abort procedure* /əˈbɔːp prəˈsiːdʒər/, and schwa, /ə/, is elided under the circumstance of stop alveolar and syllabic consonants such as *today* /tdeɪ/ and *personal* /ˈpɝːrsnl/ in the process of deletion.

Meanwhile, dissimilation, evidently, has different factor to occur from assimilation and deletion in influenced by phonological environment. While assimilation and deletion undergo phoneme alteration as influenced by the neighbouring phoneme, dissimilation is not under that regulation. It occurs in a word due to the recurrence of a phoneme within, and the phoneme is not found in an encounter. During this research investigation, /r/ recurrence is solely patterning the process of dissimilation in the dialogue held by the characters of "The Martian" film. As presented in table 3.3, it reveals that none of recurred phonemes are found to encounter each other. Even if it is found in the characters' speech, it does not constitute the process of dissimilation.

Another thing to be highlighted is that the omission of /r/ within the data illustrated in dissimilation findings is not regarded as deletion process, but dissimilation instead. The omission of /r/, in this process, is caused by the existence of another /r/ within different syllable (phoneme recurrence) and not under the rules of deletion. /r/ is omitted in order not to take the features of its neighbouring phoneme. Consequently, the phoneme /r/ dissimilates.

Factually, English, in this case, American English, possesses many patterns signifying dissimilation process, such as, *government* /ˈgʌvərnmənt/ with

/n/ recurrence and fulfill /fʊlˈfɪl/ with /l/ recurrence. However, only /r/ recurs in some speech produced by the film characters. It indicates that the most familiar pattern of dissimilation process in American accent is /r/ recurrence.

As well as the phonological environments, the occurrence of phonological rules in speech production is also provoked by the speech rapidity uttered by the characters in "The Martian" film. The speech rapidity might be based on speakers' emotional conditions. The speakers might utter their speech in different feelings, angry, happy, nervous or strained, relaxed, and even indolent. The speed of speech production resulting from each of the feelings will be different. When angry and happy, for example, the speakers tend to utter speech in quite fast as expressing their pique and joy but when relaxed and indolent they tend to utter speech quite calmly and slowly. This factor, in several cases, leads phonological rules not to occur. This particular finding agrees with Azannee & Pilus (2013) that examined frequency and the pausing rate of assimilated phrases in his research of phonological assimilation comparison between L1 and L2.

However, speaking is not like pronouncing words in isolation in which the speakers can easily articulate all the segments of a word clearly as pronouncing in almost slow motion, but further complicated since it is connecting a word to the others in more rapid frequency. It is in line with Yule's (2010) idea that normal speech is mostly fast and spontaneous that it constrains speakers' articulators to stir from one sound to the following sound without a break. The speakers, then, articulate one sound and the next sound almost at once, in which the process is

called coarticulation (Yule, 2010). This factor also triggers phonological rules occur in speech.

Finally, this study also incidentally found that the process of aphaeresis is inspired by syncopation. The only pattern and regulation of aphaeresis is deleting the initial phoneme or phonemes of a word with indefinite rule. *Let us*, for instance, is pronounced as /lets/, *you will* is as /ju:l/, and *we are* is as /wir/ due to the morphological construction of contracted forms as *let's*, *you'll*, and *we're*. However, the researcher found that those contracted forms are not deleted in that simple way. It goes further to the rules of syncopation. When the initial phonemes of those second words are linked to the preceding words for a phrase, the phonemes become taking place in the interior phoneme, so that the phonemes are being treated like in syncopation process. The phonemes tend to be elided as being weak vowels within the words. As described in the dictionary that the words *us, am, is, will, would, have,* and *has* can be pronounced in weak forms /əs/, /əm/, /ɪz/ or /z/ or /s/, /wɪl/, /wəd/, /həv/, and /həz/.

Furthermore, to make the deletion potential to happen, the weak vowels, /ə/ and /ɪ/, in the initial phonemes of those words occur after voiceless stop consonants, /p/, /t/, or /k/, as in, *let us* /let əs/ and *that is* /ðæt ɪz/. Those phoneme also occur before syllabic consonants, /m/, /n/, /l/, or /r/, as in *you are* /juː ər/ and *I am* /aɪ əm/. However, additional processes happen to *will* /wɪl/, *would* /wəd/, and *have* /həv/, in which both words are also featured assimilation process for the loss of /w/ and /h/. The deletion of /h/ in /həv/ is influenced by the *liquidation of glottal consonant /h/* as a process of assimilation, so that the phoneme /h/

assimilates fully to the preceding phoneme /aɪ/. Then, the phrase remains /aɪəv/. Meanwhile, /w/ in wɪl/ and /wəd/ is deleted as it is an approximant phoneme in its phonetic nature, which can function as a vowel like /r/ and /j/ (as regarded by some linguists, as explained in Dardjowidjojo (2009)), so that it will sound /aɪʊəd/. In English phonotactic constraints, vowels patterns do not exist over triphtong so that that pattern is impossible. Then, the possible pattern as ruled in triphtong for the word is /aɪəd/ by eliding /ʊ/. For final process, both of schwa in /aɪəv/ and /aɪəd/ are elided because of being weak vowels. This finding might be useful for the future research and it deserves further investigation.

CHAPTER IV

CONCLUSION AND SUGGESTION

4.1 Conclusion

This study is set out to explore Lass's (1984) theory about phonological rules in "The Martian" film. It addresses two primary objectives of the study: to know the types of phonological rules applied and to identify to what extent the case of phonological rules are applied by the characters in the film. The findings suggested that the phenomena of English phonological rules are highly found in three types proposed with the highest number of occurrence arises in deletion. Assimilation is amounted to 41 words and phrases, 18 for regressive, 22 for progressive and 1 for reciprocal assimilation. Dissimilation is numbered 4 words only with solely pattern /r/ recurrence. Meanwhile, deletion is amounted to 54 words and phrases split into 19 for aphaeresis, 19 for syncopation, and 21 for apocopation.

In extended case, assimilation and deletion arise under the phonological environments in which particular segments alter as influenced by the neighbouring segments or phonemes. Meanwhile, dissimilation occurs under different influence of phonological environment that it is due to the phoneme recurrence. The recurrence is not occurring in an encounter as neighbouring segments, but different syllables of words with no contact of articulation.

As well as phonological environment, the rapidity of speech is also considered as a factor provoking the phonological rules to occur. The rapidity might be influenced by the emotional conditions of the speakers.

Dealing with assimilation, this process is always applied by altering a phoneme's place of articulation, manner of articulation, and voicing. A phoneme can undergo one feature or two features alteration at the same time. One feature alteration is identified in labialization of stop consonant /t/, devoicing of alveolar consonant /d/, velarization of stop consonant /d/, frication of stop labial /b/, velarization of nasal consonant /n/, labialization of nasal consonant /n/, rhoticity of lateral consonant /l/, flapping of dental consonant /ð/, nasalization of dental consonant /ð/, nasalization of alveolar /t/ and /d/, liquidation of glottal consonant /h/, and voicing of voiceless alveolar /s/, in both regressive and progressive assimilation. Whereas, two features alteration is identified in dentalization and frication of stop alveolar consonant /t/ in regressive assimilation and palatalization of the mutual consonants /t/ and /j/ in reciprocal assimilation.

Dissimilation as the converse of assimilation occurs in solely /r/ recurrence. It always arises in the coda of a syllable either stressed or unstressed. For the rule of stressed syllables, /r/ is omitted after long vowels, whereas for unstressed syllables, /r/ is omitted after short and weak vowel. The words patterned in recurred phonemes are surprisingly rare to exist. However, when existing in words, the speech tends to be featured with dissimilation process.

The last to conclude is the deletion process. The process might happen in the initial, interior, and final phoneme of a word, in which are respectively called

as aphaeresis, syncopation, and apocopation. Aphaeresis is found that the process of deleting phonemes is inspired by syncopation rules. Deletion, in this case, is identified to arise in the whole rules of either syncopation or apocopation, which are termed as elision of week vowels after voiceless stop consonant, elision of week vowels before syllabic consonants, and elision of consonant clusters.

4.2 Suggestion

From the results of this English phonological rules analysis in "The Martian" film, the phenomena are found not only within the three types investigated but also other types, such as intrusive /r/ lenition and fortition. Hence, it is recommended to conduct research on other types of phonological rules for the reference of future research seeing that the investigated type so far mainly focus on assimilation.

Since this study merely focuses on film where the speech or dialogues have been written in screenplay, the speech might be less natural owned by the characters. Therefore, the investigation in more real phenomena, like speech in native English community, is considerably needed to enrich understandings and insights of phonological rules.

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APPENDICES

A. Regressive assimilation

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme encounters	Phoneme alterations
1.	Abort procedure	/əˈbɔːt prəˈsiːdʒər/	/əˈbɔːp prəˈsiːdʒər/	/t/ enc. /p/	/t/ into /p/
2.	Smart people	/smɑːrt ˈpiːpl/	/smɑːrp ˈpiːpl/	/t/ enc. /p/	/t/ into /p/
3.	Intercept point	/ˌɪntərˈsept pɔɪnt/	/ˌɪntərˈsep pɔɪnt/	/t/ enc. /p/	/t/ into /p/
4.	Jet Propulsion	/ʤet prəˈpʌlʃən/	/ʤep prəˈpʌlʃən/	/t/ enc. /p/	/t/ into /p/
5.	Broadcast picture	/ˈbrɔdˌkæst ˈpɪkʧər/	/ˈbrɔdˌkæsp ˈpɪkʧər/	/t/ enc. /p/	/t/ into /p/
6.	Get moving	/get ˈmuːvɪŋ/	/gep ˈmuːvɪŋ/	/t/ enc. /m/	/t/ into /p/
7.	Smart move	/smɑːrt muːv/	/smɑːrp muːv/	/t/ enc. /m/	/t/ into /p/
8.	It that	/ɪt ðæt/	/ɪð ðæt/	/t/ enc. /ð/	/t/ into /ð/
9.	Left this	/left ðɪs/	/lefð ðɪs/	/t/ enc. /ð/	/t/ into /ð/
10.	Accept that	/əkˈsept ðæt/	/əkˈsepð ðæt/	/t/ enc. /ð/	/t/ into /ð/
11.	Standard time	/ˈstændərd taɪm/	/ˈstændərt taɪm/	/d/ enc. /t/	/d/ into /t/
12.	Good to	/gʊd tu/	/gʊt tu/	/d/ enc. /t/	/d/ into /t/
13.	Obviously	/ˈɒb.vi.ə.sli/	/ˈɒv.vi.ə.sli/	/b/ enc. /v/	/b/ into /v/
14.	I can get	/kæn get/	/kæŋ get/	/n/ enc. /g/	/n/ into /ŋ/
15.	Support from	/səˈpɔːrt frɒm/	/səˈpɔːrf frɒm/	/t/ enc. /f/	/t/ into /f/
16.	Iron man	/ˈaɪrn mæn/	/ˈaɪrm mæn/	/n/ enc. /m/	/n/ into /m/
17.	Good kick	/gʊd kɪk/	/gʊk kɪk/	/d/ enc. /k/	/d/ into /k/
18.	All right	/ɔːl raɪt/	/ɔː raɪt/	/l/ enc. /r/	/l/ into /r/

B. Progressive assimilation

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme encounters	Phoneme alterations
1.	Shut ‘em	/ʃʌt ðem/	/ʃʌt em/	/t/ enc. /ð/	/ð/ into /t/
2.	Get that	/get ðæt/	/get tæt/	/t/ enc. /ð/	/ð/ into /t/
3.	About that	/əˈbaʊt ðæt/	/əˈbaʊt tæt/	/t/ enc. /ð/	/ð/ into /t/
4.	Banished	/ˈbænɪʃt	/ˈbænɪʃt tem/	/t/ enc. /ð/	/ð/ into /t/

	them	ðem/			
5.	And then	/ænd ðen/	/ænd en/	/d/ enc. /ð/	/ð/ into /d/
6.	Told them	/toʊld ðem/	/toʊld em/	/d/ enc. /ð/	/ð/ into /d/
7.	Did that	/dɪd ðæt/	/dɪd dæt/	/d/ enc. /ð/	/ð/ into /d/
8.	Over him	/ˈəʊvər hɪm/	/ˈəʊvər ɪm/	/r/ enc. /h/	/h/ into /r/
9.	After him	/ˈæftər hɪm/	/ˈæftər ɪm/	/r/ enc. /h/	/h/ into /r/
10.	Left him	/left hɪm/	/left ɪm/	/t/ enc. /h/	/h/ into /t/
11.	Get him	/get hɪm/	/get ɪm/	/t/ enc. /h/	/h/ into /t/
12.	Get here	/get hɪr/	/get ɪr/	/t/ enc. /h/	/h/ into /t/
13.	Got him	/gɑːt hɪm/	/gɑːt ɪm/	/t/ enc. /h/	/h/ into /t/
14.	Killed him	/kɪld hɪm/	/kɪld ɪm/	/d/ enc. /h/	/h/ into /d/
15.	Give him	/gɪv hɪm/	/gɪv ɪm/	/v/ enc. /h/	/h/ into /v/
16.	Of him	/əv hɪm/	/əv ɪm/	/f/ enc. /h/	/h/ into /f/
17.	Even though	/ˈiːvən ðəʊ/	/ˈiːvən nəʊ/	/n/ enc. /ð/	/ð/ into /n/
18.	Intercept	/ˌɪntərˈsept/	/ˌɪnərˈsept/	/n/ enc. /t/	/t/ into /n/
19.	Twenty	/ˈtwenti/	/ˈtweni/	/n/ enc. /t/	/t/ into /n/
20.	Plenty	/ˈplenti/	/ˈpleni/	/n/ enc. /t/	/t/ into /n/
21.	Pathfinder	/ˈpæθˌfaɪndər/	/ˈpæθˌfaɪnər/	/n/ enc. /d/	/d/ into /n/
22.	Does spin	/dʌz spɪn/	/dʌz zpɪn/	/z/ enc. /s/	/s/ into /z/

C. Reciprocal assimilation

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme encounters	Phoneme alterations
1.	Get you	/get ju/	/getʃu/	/t/ enc. /j/	/tʃ/

D. Dissimilation

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme(s) deleted
1	Report	/rɪˈpɔːrt/	/rɪˈpɔːt/	/r/
2	Armstrong	/ˈɑːrmˌstrɑŋ/	/ˈɑːmˌstrɑːŋ/	/r/
3	Order	/ˈɔːrdər/	/ˈɔːdər/	/r/
4	Surprise	/sərˈpraɪz/	/səˈpraɪz/	/r/

E. Deletion of aphaeresis.

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme(s) deleted	Morphologically written
1	Let us	/let ʌs/ or /let əs/	/lets/	/ʌ/ or /ə/	Let’s
2	You will	/juː wɪl/	/juːl/	/w/ and /ɪ/	You’ll

3	We are	/wi ɑːr/ /wi ər/	/wir/	/ɑː/ or / ə/	We’re
4	That is	/ðæt ɪz/ /ðæt s/	/ðæts/	/ɪ/ or nothing	That’s
5	I am	/aɪ æm/ or /aɪ əm/	/aɪm/	/æ/ or /ə/	I’m
6	I will	/aɪ wɪl/	/aɪl/	/w/ and /ɪ/	I’ll
7	I have	/aɪ hæv/ or /aɪ həv/	/aɪv/	/h/ and /æ/ or /ə/	I’ve
8	What is	/wɑːt ɪz/ /wɑːt s/	/wɑːts/	/ɪ/ or nothing	What’s
9	You are	/jʊ ɑːr/ /jʊ ər/	/jʊr/	/ɑː/ or /ə/	You’re
10	We have	/wi hæv/ or /wi həv/	/wiv/	/h/ and /æ/ or /ə/	We’ve
11	It will	/ˈɪt wɪl/	/ˈɪtəl/	/w/ and /ɪ/	It’ll
12	He is	/hiː ɪz/ /hiː z/	/hiːz/	/ɪ/ or nothing	He’s
13	It is	/ɪt ɪz/ /ɪt z/	/ɪts/	/ɪ/ or nothing	It’s
14	I would	/aɪ /wʊd/ or /aɪ /wəd/	/aɪd/	/h/ and /ʊ/ or /ə/	I’d
15	How is	/haʊ ɪz/ /haʊ z/	/haʊz/	/ɪ/ or nothing	How’s
16	There is	/ðer ɪz/ /ðerz/	/ðerz/	/ɪ/ or nothing	There’s
17	We will	/wi wɪl/	/wil/	/w/ and /ɪ/	We’ll
18	They have	/ðeɪ hæv/ or /ðeɪ həv/	/ðeɪv/	/h/ and /æ/ or /ə/	They’ve
19	He will	/hiː wɪl/	/hiːl/	/w/ and /ɪ/	He’ll

F. Deletion of syncopation.

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme(s) deleted
1	Today	/təˈdeɪ/	/tdeɪ/	/ə/
2	Potato	/pəˈteɪ.toʊ/	/pˈteɪ.toʊ/	/ə/
3	History	/ˈhɪstəri/	/ˈhɪstri/	/ə/
4	Desolate	/ˈdesələt/	/ˈdeslət/	/ə/
5	Solution	/səˈluːʃən/	/sˈluːʃən/	/ə/
6	Escalated	/ˈes.kəleɪtɪd/	/ˈes.kleɪtɪd/	/ə/
7	Personal	/ˈpɝːrsənəl/	/ˈpɝːrsnl/	/ə/
8	Acceleration	/ək͵seləˈreɪʃən	/ək͵selˈreɪʃən/	/ə/
9	Haven’t had	/ˈhævənt hæd/	/ˈhævən hæd/	/ə/ and /t/
10	Shouldn’t have	/ˈʃʊdənt hæv/	/ˈʃʊdn hæv/	/ə/ and /t/

11	Hasn’t change	/ˈhæzənt /ʧɛɪndʒ/	/ˈhæzn ʧɛɪndʒ/	/ə/ and /t/
12	Even	/ˈiːvən/	/ˈiːvn/	/ə/
13	Open	/ˈoʊpən/	/ˈoʊpn/	/ə/
14	Seven	/ˈsevən/	/ˈsevn/	/ə/
15	Listening	/ˈlɪsənɪŋ	/ˈlɪsnɪŋ/	/ə/
16	Months	/mʌn*t* θs/	/mʌn*t* s/	/θ/
17	Hands	/hændz/	/hænz/	/d/
18	Grounds	/ˈgraʊn*d*z/	/ˈgraʊnz/	/d/
19	Sounds	/saʊn*d*z/	/saʊn*t*s/	/d/

G. Deletion of apocopation

No	Words/ Phrases	Phonetically transcribed	The speech produced	Phoneme(s) deleted
1	Sent me	/sent mɪ/	/sen mɪ/	/t/
2	Want me	/wɑːnt mɪ/	/wɑːn mɪ/	/t/
3	Almost zero	/ˈɑːl.moʊst ˈzɪr.oʊ/	/ˈɑːl.moʊs ˈzɪr.oʊ/	/t/
4	Coolest one	/kuːləst /wʌn/	/kuːləst /wʌn/	/t/
5	Mount the	/maʊnt ðə/	/maʊnt ðə/	/t/
6	Account for	/əˈkaʊnt /fɔːr/	/əˈkaʊnt /fɔːr/	/t/
7	Intercept using	/ˌɪn.təˈsept juːzɪŋ/	/ˌɪn.təˈsept juːzɪŋ/	/t/
8	Intercept safely	/ˌɪn.təˈsept /ˈseɪ.fli/	/ˌɪn.təˈsept /ˈseɪ.fli/	/t/
9	Ascent with	/əˈsent/	/əˈsent wɪð/	/t/
10	Moment for	/ˈmoʊmənt fɔːr/	/ˈmoʊmənt fɔːr/	/t/
11	Around four	/əˈraʊnd fɔːr/	/əˈraʊn fɔːr/	/d/
12	And we	/ænd wiː/	/æn wiː/	/d/
13	And killed	/ænd kɪld/	/æn kɪld/	/d/
14	Second we	/ˈsekənd wi/	/ˈsekən wi/	/d/
15	Behind me	/bɪˈhaɪnd miː/	/bɪˈhaɪn miː/	/d/
16	Send Watney	/send wɑːtniː/	/sen wɑːtniː/	/d/
17	And I	/ænd aiː/	/æn aiː/	/d/
18	Second I	/ˈsekənd aiː/	/ˈsekən aiː/	/d/
19	Sixth	/sɪksθ/	/sɪks/	/θ/
20	World	/wɝːrld/	/wɝːrl/	/d/
21	Physicist	/ˈfɪzɪsɪsts/	/ˈfɪzɪsɪs/	/t/ and /s/

FOR YOUR CONSIDERATION

THE MARTIAN

BEST ADAPTED SCREENPLAY

Scre
enpl
ay
by

Drew
Goddard

Based upon
the novel by

Andy Weir

THE MARTIAN

Written by

Drew Goddard

Based on the novel by Andy Weir

Shooting Script

TWENTIETH CENTURY FOX
10201 W. Pico Blvd.
Los Angeles, CA 90035

EXT. SPACE - MARS - TO ESTABLISH

THE RED PLANET momentarily eclipses the Sun. As sunlight breaks across the edge, warming the surface...

EXT. MARS - DAY

We're MOVING THROUGH the channels of Acidalia Planitia to find the ARES 3 HAB SITE.

LEWIS (OVER RADIO)
All right, team. Stay in sight of each other. Let's make NASA proud...

TITLE: SOL 18

EXT. MARS - DAY

CLOSE ON ASTRONAUT MARK WATNEY. He's in the middle of an EVA experiment. He chips at a section of rocks and records his observations on his ARM COMPUTER.

Bright-eyed and optimistic. Another day at the office.

MARK
In grid section fourteen twenty-eight, the particles appear predominantly "coarse," but as we move to twenty-nine, the particles are much finer, and should be ideal for chem analysis.

VOICE (OVER RADIO)
Hear that, everyone?

And we FIND RICK MARTINEZ inspecting the MARS ASCENT VEHICLE (a.k.a "The MAV") on the launch pad. They speak over radios.

MARTINEZ
Mark just discovered "dirt." Alert the media.

MARK
What's your job today, Martinez? Confirming the MAV is still upright?

MARTINEZ
Visual inspection of equipment is imperative to mission success.

Martinez studies the MAV for a moment, then speaks thoughtfully into his arm computer:

MARTINEZ (CONT'D)
"The MAV is still upright."

(CONTINUED)

CONTINUED:

VOICE (RADIO)
Watney, you keep leaving your channel open...

FIND COMMANDER MELISSA LEWIS across the way, overseeing a drill experiment.

LEWIS
Which leads to Martinez responding, which leads to us listening, which leads to me being annoyed.

MARK
Martinez, Commander Lewis would like you please shut your smart mouth.

VOICE
Speaking for the smart people of the world...

INT. HAB - DAY

DR. CHRIS BECK studies samples on slides at his station.

BECK
We would prefer you use a different adjective to describe Martinez' mouth.

EXT. MARS - DAY

MARTINEZ
Did Beck just insult me?

MARK
Doctor Beck. And yes.

VOICE
Happy to turn their radios off from here, Commander...

INT. HAB - DAY

BETH JOHANSSEN sits inside at her computer, tracking (among other things) the group's communications.

JOHANSSEN
Just say the word.

EXT. MARS - DAY

MARK
Johanssen, constant communication is the hallmark of a --

CONTINUED:

LEWIS
Shut 'em off.

Click. Mark and Martinez' radios go SILENT.

As Lewis works, we see Mark throwing up his arms in the background, like "*Hey! C'mon!*"

LEWIS (CONT'D)
I apologize for my countrymen, Vogel.

ALEX VOGEL wears the EUROPEAN UNION patch on his shoulder.

ALEX
Accepted. How many samples do we need, Commander?

LEWIS
Seven. One hundred grams each. Drill at least thirty centimeters down.

While the two of them use a SPECIMEN DRILL to bore holes in the ground, we see Mark waving his arms in the background: *C'mon, turn my radio back on...*

INT. HAB - DAY

Johanssen frowns as she receives a MISSION UPDATE from Houston. Her face goes PALE...

JOHANSSEN
Um... Commander? You should come inside...

EXT. HAB - DAY

JOHANSSEN (OVER RADIO)
You're gonna want to see this.

Lewis reads the tension in Johanssen's voice.

LEWIS
What is it?

JOHANSSEN
We got a mission update. Storm warning.

LEWIS
I saw the warning in the morning briefing. We'll be inside long before it hits.

CONTINUED:

JOHANSSEN
They've upgraded their estimate.
(beat)
The storm's gonna be worse.

LEWIS looks to the skies. IN THE DISTANCE: a STORM darkens the horizon.

Angle MARK: as the dirt in front of him starts to blow in the incoming WIND...

INT. HAB - DAY

Lewis reads the update. Everyone else is inside as well. Mood is grim -- this is not good news.

LEWIS
"...twelve-hundred kilometers in diameter, bearing 24.41 degrees..."

JOHANSSEN
That's tracking right towards us.

LEWIS
"...based on current escalation, estimate a force of...
(shit)
"Eighty-six hundred Newtons."

MARK
What's the Abort Force?

BECK
Seventy-five hundred.

MARTINEZ
Anything above that and the MAV could tip.

VOGEL
We're scrubbed?

LEWIS
(reading)
"Begin abort procedures."

Everyone tries to hide their crushing disappointment.

MARTINEZ
Maybe it won't be as bad as they say.

VOGEL
They're estimating with a margin of error. We can wait it out.

(CONTINUED)

CONTINUED:

MARK
(nods)
Let's wait it out.

ON LEWIS. This news hits her worst of all. She tries to consider all her options. Mind RACING.

JOHANSSEN
Commander?

Fuck.

LEWIS
Prep for emergency departure.

MARK
Commander --

LEWIS
We're scrubbed.

EXT. HAB - STORM - DAY

The HIGH WINDS slam into our five astronauts as they exit the airlock. They struggle to stay on their feet as they fight their way through the punishing storm.

LEWIS
Visibility is almost zero. If you get lost, home in on my suit's telemetry. The wind's gonna be rougher away from the Hab, so be ready.

Sand continues to slam them as they take step after agonizing step towards the MAV. It's brutal; they fight for every inch.

MARK
Hey. Maybe we could shore up the MAV. Make tipping less likely.

LEWIS
How?

MARK
We could use cables from the solar farm as guy lines.

Mark pauses to catch his breath. Starts forward again...

MARK (CONT'D)
The rovers could be anchors. The trick would be getting around the--

CONTINUED:

WHAM! A massive section of antenna SLAMS INTO MARK out of nowhere. He's lifted off his feet and YANKED away into the storm. It happens FAST. One second he's there...

And then he's gone.

JOHANSSEN
WATNEY!!!

LEWIS
What happened?

JOHANSSEN
Something hit him --

LEWIS
Watney, report --
(no reply)
WATNEY, REPORT!

JOHANSSEN
He's offline. I don't know where he is --

BECK
-- Commander, before we lost telemetry, his decompression alarm went off --

LEWIS
Shit! Johanssen where did you last see him?

JOHANSSEN
-- He was right in front of me and then he was gone. He flew off due west --

Lewis surveys the scene. Visibility is NEAR ZERO. She can barely see the people next to her. Tries to keep her heart from POUNDING out of her chest.

LEWIS (CONT'D)
Okay... okay... Martinez, get to the MAV and prep for launch. Everyone else, home in on Johanssen.

JOHANSSEN
(stumbling)
I can't see anything --

VOGEL
Doctor Beck! How long can a person survive decompression?

BECK
Less than minute.

LEWIS
Line up and walk west. Small steps. He's probably prone. We don't want to step over him.

(CONTINUED)

CONTINUED: (2)

The group fights through the chaos --

INT. MAV - CONTINUOUS - DAY

WHOOSH! Martinez dives into the airlock, forces the door closed. Waits for agonizing seconds as it pressurizes...

Pressurized. Martinez races up the ladder, slides into the pilot's couch and boots the system.

MARTINEZ
Commander -- The MAV's got an 8 degree tilt. It'll tip at 12.3 --

EXT. HAB - STORM - CONTINUOUS - DAY

LEWIS
Copy that --

Beck checks the readout on his arm computer.

BECK
Johanssen, Watney's bio-monitor sent something before going offline. My computer just says "Bad Packet" --

JOHANSSEN
It didn't finish transmitting.
(works her arm computer)
I have the raw packet. It's plaintext: BP 0, PR 0, TP 36.2.

BECK
Copy.
(then)
Blood pressure zero. Pulse rate zero. Temperature normal.

LEWIS
Temperature normal?

BECK
It takes a while for the... it takes a while for the body to cool.

Everyone stops short as that news lands.

MARTINEZ (OVER RADIO)
Commander. Tilting at 10.5 degrees now, with gusts pushing it to 11.

LEWIS
Copy. If it tips, can you launch before it completely falls over?

(CONTINUED)

CONTINUED:

MARTINEZ (OVER RADIO)
(hesitates)
Uh. Yes. Ma'am. I could take manual control.

LEWIS
Copy that. Everyone home in on Martinez' suit. That'll get you to the airlock. Get in and prep for launch.

VOGEL
What about you, Commander?

LEWIS
I'm searching a little more. Get moving. And Martinez, if you start to top, launch.

MARTINEZ (OVER RADIO)
You really think I'm leaving you behind?

LEWIS
I just ordered you to. You three, get to the ship.
(as they hesitate)
GO.

INT. MAV - CONTINUOUS - DAY

Vogel, Beck, and Johanssen stumble into the airlock.

EXT. STORM - CONTINUOUS - DAY

Lewis can't see a thing in any direction. *C'mon, think, Melissa, think...*

She reaches into the pack on her back and removes two of the one meter drill bits she was using earlier to take samples. She holds one in each hand, dragging them on the ground as she trudges through the sand.

LEWIS
Johanssen, would the rover IR camera do any good?

INT. MAV - CONTINUOUS - DAY

JOHANSSEN (INTO RADIO)
Negative. IR can't get through sand any better than visible light.

They rip off their helmets. Scramble up the ladder.

CONTINUED:

BECK
What's she thinking? She's a geologist. She knows IR can't get through a sandstorm.

VOGEL
She's grasping. For anything.

MARTINEZ
Commander. We're tilting 11.6 degrees. One good gust and we're tipping.

LEWIS (OVER RADIO)
What about the proximity radar? Could it detect Watney's suit?

MARTINEZ
No way. It's made to see Hermes in orbit, not the metal in a single suit.

LEWIS (OVER RADIO)
Copy. Give it a try.

Beck slides into his acceleration couch.

BECK
Commander, I know you don't want to hear this, but Watn... Mark's dead.

LEWIS (OVER RADIO)
Copy.
(then)
Martinez, try the radar.

MARTINEZ
Roger.

As Martinez waits for the radar, he glares at Beck.

MARTINEZ (CONT'D)
What is wrong with you?

BECK
My friend just died. I don't want my Commander to die too.

EXT. STORM - CONTINUOUS - DAY

Lewis fights her way through the storm.

MARTINEZ (OVER RADIO)
Negative contact on proximity radar.

CONTINUED:

LEWIS
Nothing?

INT. MAV - CONTINUOUS - DAY

MARTINEZ
It can barely see the Hab. There's not enough met--

SCREEEACH -- the MAV lurches, begins to tip --

MARTINEZ (CONT'D)
Strap in! We're tipping!

JOHANSSEN
13 degrees --

VOGEL
-- We're past balance. We'll never rock back --

BECK
Let it tip. We can't leave her.

MARTINEZ
We'll never be able to fix it if it tips. I got one trick left, then I'm following orders.

EXT. MAV - CONTINUOUS - DAY

WHOOSH -- Martinez fires a burn from the nosecone array. The thrusters fight against the slow tilt of the spacecraft...

INT. MAV - CONTINUOUS - DAY

VOGEL
You are firing the OMS?

MARTINEZ
C'mon... c'mon...

JOHANSSEN
12.9 degrees...

BECK
Commander. You need to get back to the ship. Now.

MARTINEZ
Agreed. He's gone, Ma'am...

EXT. STORM - CONTINUOUS - DAY

Lewis stands alone in the storm.

MARTINEZ (OVER RADIO)
Watney's gone.

She stares out at the darkness all around her.

INT. MAV - CONTINUOUS - DAY

Martinez fights the controls. Beck and Johanssen share nervous glances. Finally:

LEWIS (OVER RADIO)
Copy. On my way.

JOHANSSEN
11.6... 11.5... holding at 11.5...

INT. MAV - AIRLOCK - CONTINUOUS - DAY

WHOOSH. Down below, Lewis slams the airlock door shut. She tears off her suit. Makes her way to the flight cabin.

She doesn't say a word as she straps herself in to her couch.

For a moment, nobody speaks. Then:

MARTINEZ
Still at pilot release. Ready for launch.

Lewis closes her eyes. Nods.

MARTINEZ (CONT'D)
I'm sorry, Commander. You need to verbally --

LEWIS
Launch.

Martinez nods. Activates the sequence. The pyros FIRE. The main engines IGNITE...

CLOSE ON LEWIS. Just as the MAV LURCHES UPWARD, we --

CUT TO:

INT. NASA - PRESS ROOM - DAY

THEODORE "TEDDY" SANDERS, Director of NASA, steels himself before he steps to the podium. Normally, he leaves these briefings to his press secretary.

Today is different. He opens a RED FOLDER.

TEDDY
At around 4:30 a.m., central standard time, our satellites detected a storm approaching the Ares 3 mission site on Mars.
(MORE)

(CONTINUED)

CONTINUED:

TEDDY (CONT'D)
By 6:45, the storm had escalated to "severe," and we had no choice but to abort the mission. Thanks to the quick action of Commander Lewis, astronauts Beck, Johanssen, Martinez, and Vogel were all able to reach the Mars Ascent Vehicle and perform an emergency launch at 7:28 central time.
(then)
Unfortunately, during the evacuation, Astronaut Mark Watney was struck by debris and killed. Commander Lewis and the rest of her team were able to intercept safely with the *Hermes* and are now heading home...
(wavers, then)
But Mark Watney is dead.

As the CACOPHONY of questions erupts from the press --

EXT. MARS - DAY

Clear skies above the surface of Mars once again. PRELAP the sound of an ALARM: *ARRR... ARRR... ARRR...*

A BODY lies facedown, half-covered in red sand at the base of a hill. We catch a glimpse of the nametag on the spacesuit:

"Watney."

The OXYGEN ALARM inside the helmet continues to BLARE. And just as it builds to crescendo...

Mark Watney gasps for air.

He jerks back into consciousness. He's disoriented, alarms BLARING inside his helmet. As he struggles to move...

He screams in pain. Glances down. Sees:

A JAGGED LENGTH OF ANTENNA has pierced his spacesuit and stabbed straight into his abdomen. CAKED BLOOD all around the wound.

Mark's training kicks in -- *the suit is breached* -- he struggles to his knees -- gasping in pain -- he reaches to the side of his helmet for the BREACH KIT -- pulls the valve free -- grabs hold of the antenna... grits his teeth...

AND YANKS the antenna out of his side. The antenna SNAPS FREE -- the suit is exposed to atmosphere -- the pressure inside DROPS -- Mark CRIES OUT, goes woozy --

But stays conscious.

(CONTINUED)

CONTINUED:

He slams the breach kit over the hole. Seals it. Checks his arm readout. The oxygen stabilizes. He's still alive.

For now.

He struggles to his feet. Picks up the length of antenna. Begins the LONG CLIMB up the hill.

EXT. MARS - HAB - DAY

We're WITH MARK as he makes the climb, and as he crests the hill we swing around to reveal:

THE ARES 3 HABITATION (a.k.a. "The Hab"): The large, white tent-like structure where the six crew members lived during their time on Mars.

It's been battered by the storm, but it's still intact. Mark registers momentary relief. But then his eyes dart over to the MAV LAUNCH SITE.

It's empty.

He keeps walking.

INT. HAB - AIRLOCK - DAY

Mark fumbles his way into one of the hab's airlocks. As soon as the airlock equalizes, he tears off his helmet...

INT. HAB - DAY

Mark stumbles into the main area. Peels off his jumpsuit. WINCES as he rips the blood-caked fabric away from HIS WOUND.

His fingers probe the puncture. It's deep. *That's bad.* He checks his back for an exit wound. There's none. *That's good.* He grabs the broken antenna he brought with him. His fingers trace the bloodied end. It's jagged -- as though a piece of the antenna broke off inside him.

That's really bad.

Mark stumbles over to the first-aid station. Grabs supplies. Anesthetic. Syringe. Forceps. Needle. Suture thread.

(This is not exactly going to be easy to watch.)

Sweat pouring off his brow, Mark loads up the syringe with anesthetic. Grits his teeth. Injects it into his wound. Gasps. Breathes. Grabs the forceps. Hesitates. *I don't want to do this.* He takes a deep breath...

And digs the forceps into his wound.

CONTINUED:

He CRIES OUT in pain. Nearly goes unconscious. Fights it. *Don't pass out, Mark.* He probes with the forceps, grimacing in agony. He can't find it. Pushes the forceps in deeper. And DEEPER. Jesus. Mark's face goes WHITE.

He finds it. Yanks the forceps free. Sees the small piece of shrapnel. *It's out.* Hallelujah.

Mark grabs the needle. Tries to thread it. His hands won't stop shaking. He makes fists. *C'mon Mark.* Steadies himself *just enough.*

He begins to stitch himself up. Bit by agonizing bit. His hands keep shaking, but he refuses to stop until the wound is closed. Finally...

He's done. He clips the sutures. Collapses back into his chair. *Oh Jesus.* Tries to catch his breath.

We slowly ANGLE IN ON MARK as he struggles to breathe... and breathe...

And as we settle into a CLOSEUP, we see the full reality of Mark's situation hit him. He's in agony. Left for dead. All by himself.

The only man on the planet.

His eyes drift to the middle distance. Then...

MARK
Fuck.

CUT TO TITLE:

THE MARTIAN

INT. HAB - DAY

CAM ANGLE: we're looking through what (we assume) is a NASA camera. Mark's head peeks into frame. He adjusts the camera, seems unfamiliar with how to work the video journal.

MARK
Okay. Okay...

He types on the keypad. We see the NASA TIMESTAMP appear on the frame. *There, it's working.*

MARK (CONT'D)
This is... Mark Watney. Astronaut. I am entering this log for the record, in case I... don't make it. It's...
(MORE)

(CONTINUED)

CONTINUED:

MARK (CONT'D)
oh-six-fifty-three on Sol 19. And... I'm still alive.
(thinks)
Obviously. But I'm guessing this is going to be a surprise to my crewmates. And NASA. And... the world. So... surprise.
(then)
I didn't die on Sol 18. Best I can tell -

Mark holds up the jagged piece of antenna.

MARK (CONT'D)
-- this length of our primary communications antenna tore through my bio-monitor. And ripped a hole in me as well. It was horrible thank you for asking. But the antenna... and the blood... managed to seal the breach in my suit. Which kept me alive. Even though the team must have thought I was dead.
(then)
Commander Lewis... If you ever hear this... Listen. It wasn't your fault. Just bad luck. You did what you had to do, and if I had been in your position I would have done the same. I'm glad you guys made it.
(then)
All right, though. That's where we're at. Mark Watney, stranded on Mars. I have no way to contact NASA because our communications antenna broke and stuck into my stomach. Which we've covered. And even if I could, it will take... four years before the next manned mission gets here. And I'm in a Hab designed to last thirty-one days.
(then)
If the oxygenator breaks, I'll suffocate. If the water reclaimer breaks, I'll die of thirst. If the Hab breaches, I'll just sort of... implode. And if, by some miracle, none of that happens... eventually I'm going to run out of food. So... yeah.

Mark trails off. It's one thing to know it. It's another to say it out loud.

MARK (CONT'D)
Yeah.

INT. HAB - NIGHT

Mark sits in his bunk. Drumming his fingers on the wall. Thinking.

EXT. MARS - DAWN

The first slivers of sunlight start to creep over the horizon.

TITLE: Sol 21

INT. HAB - DAY

Mark flushes the toilet, which begins the procedure of vacuum-drying the waste. Mark glances back at the system. Hmmm...

The system finishes its process, sealing the waste into --

A SILVER BAG.

Mark studies the bag. Idea forming.

INT. HAB - DAY

Inventory. Mark removes all of the ration packs, stacking them in orderly piles as he catalogues their contents. One case in particular catches his attention.

Label: "DO NOT OPEN UNTIL THANKSGIVING."

INT. HAB - DAWN

Mark sits in the darkness. We get the sense he hasn't moved much in the night. He stares into the middle distance.

Then.

He makes the decision. *Get up, Mark.* He gets to his feet. Moves with purpose as he rummages through the hab. Looking for something. Where is it? There...

A pencil.

He pulls a notecard free from one of his manuals. *Paper.*

Back to basics. He sits at the table. And begins writing math equations.

MARK (PRELAP)
Let's do the math...

CUT TO:

(CONTINUED)

CONTINUED:

Mark addresses camera. He looks a little less-terrible than he did before.

MARK (CONT'D)
Our surface mission here was supposed to take thirty-one days. For redundancy, they sent enough food to last for sixty-eight days. For six people. So for just me, it'll last three-hundred days. And I figure I can stretch that to four hundred if I ration. So... I've still gotta figure out how to grow three years worth of food. Here. On a planet where nothing grows. Luckily, I'm the botanist.

Mark holds up one of his mission briefs. Points to the word "Botanist" under "Watney." Looks at us like, *impressed?*

MARK (CONT'D)
Mars will come to fear my botany powers.

EXT. HAB - DAY

Mark collects the pile of silver bags. Carries them inside.

INT. HAB - DAY

Mark stands in the kitchen, surrounded by silver bags. He fills a large container with water from the Reclaimer. He dumps in the contents of the compost bin.

Then he stares at the bags. He does not look happy.

He tears open a bag. Dumps the contents into the bin. Tears open another bag. As he does so, he starts to GAG --

TITLE: Sol 24

EXT. MARS - HAB - DAY

Mark scoops Martian dirt into a container with a small shovel. He carries the container to the airlock --

INT. HAB - DAY

Mark enters the Hab, dumps his container of dirt into a corner where he's cleared an empty area.

TITLE: Sol 25

INT. HAB - DAY

Same shot. Mark enters with another container. We follow to reveal... there's now a HUGE PILE of dirt in the corner.

TITLE: Sol 28

INT. HAB - DAY

Mark has spread the dirt over a third of the Hab floor. He stares at the compost bin. Eyes it like it's his nemesis.

Then he takes a deep breath. Opens the bin. Begins dumping it over the Martian dirt.

He can't hold his breath forever. He breathes eventually. Oh god, that's horrible.

TITLE: Sol 31

INT. HAB - DAY

Mark cuts each potato into four quarters, making sure each quarter has at least two eyes.

He begins planting each potato quarter in nice, orderly rows. As he works, we slowly WIDEN OUT to reveal --

The ENTIRE HAB is now covered in SOIL. Not just the floor -- Mark has cleared every available surface -- bunks, countertops, table -- and covered it with his dirt.

INT. HAB - DAY

Mark packs soil on top of one of the crew member's bunks. As he moves the personal items aside, he finds a DATA-STICK. He holds it up and looks at it: *hmmmm.* CUT TO:

Mark has plugged the data-stick into the computer and is now viewing its contents: old episodes of seventies television.

Mark just sits there. Watching HAPPY DAYS.

TITLE: Sol 36

MARK (PRELAP)
The problem is water...

INT./EXT - ROVER - DAY

Mark trudges out to the Mars Descent Vehicle (MDV) -- the lander that brought the six of them to Mars. He delicately begins to remove the Hydrazine tank from the undercarriage...

CONTINUED:

MARK (V.O.)
I've created one-hundred and twenty-six square meters of soil. But each cubic meter needs forty liters of water to be farmable. So, I gotta make a lot of water. Fortunately, I know the recipe. Take hydrogen. Add oxygen. Burn. Unfortunately... *burn*.
(then)
I have hundreds of liters of unused Hydrazine from the MDV. If I run the Hydrazine over an iridium catalyst, it'll separate into N2 and H2...

INT. HAB - DAY

Science time. Quick cuts now as Mark shows us how to make water by burning rocket fuel:

-- Mark duct tapes torn trash-bags to create a tent, which he uses to cover his work table.

-- He tears an air hose from one of the space suits, tapes it to the tent, hangs it from the roof. Now he has a chimney.

-- Mark vents pure oxygen from a tank, lights it with a spark from battery wires. Whoosh. Points the flame at the wood shavings. Now he has a small torch.

-- Mark holds the torch, starts the Hydrazine flow. The Hydrazine sizzles on the iridium and DISAPPEARS.

FOLLOW Mark's gaze up to the chimney. FLAME BURSTS start sputtering out from the hose. Mark grins. *It's working.*

Mark checks his instruments. Watches the temperature carefully. Repeats the process.

We may also notice Mark is wearing the protective inner lining of his EVA suit. Along with goggles. An oxygen mask hangs around his neck.

INT. HAB - DAY

Mark talks directly to camera. We may notice he is standing in the middle of what looks like a mad-scientist's chemistry experiment.

MARK
Then I just need to direct the hydrogen into a small area and burn it. Luckily, in the history of humanity, nothing bad has ever happened from lighting hydrogen on fire.

(CONTINUED)

CONTINUED:

Mark just stares at the camera. Then continues.

MARK (CONT'D)
Believe it or not, the challenge has been finding something that will hold a flame. NASA hates fire. Because of the whole "fire makes everyone die in space" thing. So everything we brought with us is flame retardant. With the notable exception of... Martinez' personal items.

He holds up Martinez' pack. Removes a small wooden cross.

MARK (CONT'D)
Sorry, Martinez. If you didn't want me to go through your stuff, you shouldn't have left me for dead on a desolate planet.

He starts shaving the cross down with a knife.

MARK (CONT'D)
I figure God won't mind, considering the situation.

INT. HAB - DAY

Mark's still at it. He looks exhausted. He goes through the procedure once again. Glances at the atmospheric analyzer. *Hm. Is that right?* Doesn't give it a second thought.

He strikes the torch again...

BOOM!

The explosion is LOUD, FAST, and CONTAINED. It blasts Mark clear across the room. He hits the ground like a wet rag.

INT. HAB - DAY

Mark talks to camera. His clothes are somewhat scorched. His hair is singed in patches.

MARK
So. Yes. I blew myself up.
(then)
Best guess? I forgot to account for the excess oxygen I've been exhaling when I did my calculations. Because I'm stupid.

He's still dazed. A little out of it.

CONTINUED:

MARK (CONT'D)
Interesting side note: this is how Jet Propulsion Laboratory was founded. Five guys at Cal Tech were trying to make rocket fuel and nearly burned down their dorm. Rather than expel them, Professor... Von Karman? I want to say... banished them to a nearby farm in Pasadena and told them to keep working. And now we have a space program.
(then)
See? I pay attention.
(then)
I'm gonna get back to work. As soon as my ears stop ringing.

He just sits there for a while.

INT. HAB - DAY

Mark's back at it. He checks his math, adjusts the O2 levels. He glances at camera, then crosses his fingers. Winces as he fires up the torch.

He doesn't blow up. Phew. Starts venting the hydrazine.

CUT TO:

Later. Mark steps back from the table. Wipes the sweat from his brow. Looks at his hands. *Sweat.* He walks over to the walls. Sees the condensation. Beads of water everywhere. He traces them with his finger.

It's as though he's created a rainforest in his Hab.

He walks to the WATER RECLAIMER. Takes the lid off the TANK.

It's now FILLED with water. Mark grins.

TITLE: Sol 48

INT. HAB - DAY/NIGHT

WIDE SHOT: we see the entire Hab. The surfaces covered with soil, the cramped living space, the mad-scientist experiment.

Mark works at the table. And as he does so... we begin to SPEED UP. Time lapse photography:

Mark vents the Hydrazine -- Mark checks his readouts -- Mark collects water from the reclaimer -- Mark spreads the water over his soil -- Mark eats lunch -- Mark goes back to work --

Moving faster and FASTER:

(CONTINUED)

CONTINUED:

Mark sleeps -- Mark puts on his spacesuit -- Mark exits the Hab -- Mark brings in more dirt -- Mark vents Hydrazine -- Mark eats -- Mark sleeps --

While the days FLY BY, we're slowly ANGLING towards the back of the room...

-- Mark works Mark eats Mark sleeps Mark works --

Towards a small patch of SOIL in the corner. We land in CLOSEUP: soil filling the frame. We HOLD.

And after a beat...

A single, green SPROUT breaks through the soil.

TITLE: Sol 54

CUT TO BLACK.

EXT. SPACE

And FROM BLACK, we FIND EARTH. The calming blue-greens a welcome reprieve from the fiery reds of Mars.

EXT. ARLINGTON NATIONAL CEMETERY - DAY

Teddy speaks before a memorial. A somber crowd listens in silence. We watch from far away.

TEDDY
Our nation was blessed to have Mark serving in our space program. His loss will be deeply felt, but the men and women of NASA will soldier forth, onward and upward, unbroken in the mission of their agency. In doing so, they honor the legacy Mark leaves behind, and they ensure his sacrifice will not be in vain.

EXT. NASA - DAY

A MAN walks past the NASA logo greeting visitors at the gate.

TITLE: JOHNSON SPACE CENTER, HOUSTON, TX

INT. NASA - DAY

The man enters the main lobby.

TITLE: VINCENT KAPOOR, DIRECTOR OF MARS MISSIONS, NASA

Guards glance up from the television, nod hello. As Vincent walks through security, we catch a glimpse of their screens:

(CONTINUED)

CONTINUED:

A CNN TITLE reads: "President Speaks At Watney Memorial."

INT. NASA - VARIOUS - DAY

As Vincent makes his way through NASA, we notice EVERYONE IN THE BUILDING is watching news reports of the Watney service.

ON THE SCREENS: We catch a brief glimpse of a female astronaut floating in zero-g, eulogizing Mark.

INT. NASA - TEDDY'S OFFICE - DAY

A man sits at his desk, staring out the window. We recognize him from the beginning of the movie.

TITLE: TEDDY SANDERS, DIRECTOR OF NASA

ON THE TELEVISION, we see Teddy shake hands with the President at the service.

Vincent gives it a passing glance as he enters.

VINCENT
I thought you gave a lovely speech, by the way.

Not one for small talk, Teddy gestures for Vincent to hand him the request form he's holding.

VINCENT (CONT'D)
I need you to authorize my satellite time.

Teddy gives it a quick glance, shakes his head.

TEDDY
It's not gonna happen.

VINCENT
We're funded for five Ares missions. I think I can get Congress to authorize a sixth.

TEDDY
No.

VINCENT
They evac'd after eighteen sols. There's half a mission worth of supplies up there. I can sell another mission at a fraction of the cost. I just need to know what's left of our assets.

(CONTINUED)

CONTINUED:

TEDDY
You're not the only one who needs satellite time. We've got the *Ares 4* supply missions coming up. We should be focusing on the Schiaparelli Crater.

VINCENT
I'm talking about securing us another mission. We have twelve satellites in orbit, we can surely spare a few hours --

TEDDY
It's not about the satellite time, Vince.

Vincent shrugs -- *then what is it?*

TEDDY (CONT'D)
We're a public domain organization. We have to be transparent about this.

VINCENT
And?

TEDDY
The second we point the satellites at the Hab... I broadcast pictures of Mark Watney's dead body to the world.

VINCENT
(disbelief)
You're afraid of a PR problem?

TEDDY
Of course I'm afraid of a PR problem. Another mission? Congress won't reimburse us for a paper clip if we put a dead astronaut on the cover of The Washington Post.

VINCENT
So... what do we do? He's not going to decompose. He'll be there forever.

TEDDY
Meteorology estimates he'll be covered in sand from normal weather activity within a year.

VINCENT
We can't wait a year for this. We have work to do.

CONTINUED: (2)

TEDDY
Ares 5 won't even launch for another five years. We have plenty of time.

Vincent thinks about it. Frustrated. Tries another tack.

VINCENT
Okay, consider this. Right now, the world is on our side. Sympathy for Watney's family is high...

He knows this sounds cold, but he's out of options.

VINCENT (CONT'D)
Ares 6 could bring the body back. We don't say that's the purpose of the mission, but we make it clear that would be part of it. We frame it that way, we get more support in Congress. I can sell it. But not if we wait a year.

Teddy stares back out the window. Vincent has a point.

VINCENT (CONT'D)
In a year, people won't care any more.

INT. NASA - MISSION CONTROL - NIGHT

A WOMAN in her twenties checks the work order on her screen.

TITLE: MINDY PARK, SATELLITE COMMUNICATIONS, NASA

She straightens up when she sees the request comes from "KAPOOR, Vincent." She enters the latitude and longitude...

MINDY
Acidalia Planitia...

Her heart starts to beat a little faster. Click. The images pop up: overhead shots of the Hab site. Morbid curiosity getting the better of her, she scans for Mark's dead body. Doesn't find it. *Hmmm...*

She zooms in on the Hab. *That's strange.*

And then it hits her.

Oh god.

She doesn't know what to do. It takes her a moment to find the phone. Heart POUNDING.

CONTINUED:

MINDY (CONT'D)
Security? This is Mindy Park in SatCon. I need the emergency contact number for Dr. Kapoor. Yes, him. *Yes it's an emergency* --

INT. NASA - MISSION CONTROL - NIGHT

A hard-charging WOMAN stares at us in SHOCK --

WOMAN
Oh you have GOT to be SHITTING ME --

TITLE: ANNIE MONTROSE, Director of Media Relations, NASA

Annie, Vincent, and Teddy all huddle in the conference room. IMAGES of the HAB site on the screens around them.

TEDDY
How sure?

VINCENT
Nearly 100%.

ANNIE
Do you understand the shitstorm that's about to hit us?

TEDDY
Annie, one thing at a time.
(to Vincent)
Prove it to me.

VINCENT
(points to images)
For starters, the solar panels have been cleaned.

TEDDY
They could have been cleaned by wind.

VINCENT
Look at Rover 2. According to the logs, Commander Lewis took it out on Sol 17. Plugged it into the Hab to recharge. It's been moved.

TEDDY
She could have forgotten to log the move.

VINCENT
Here's the clincher. Check the MDV. It's been taken apart. There's no way they do that without telling us.

(CONTINUED)

CONTINUED:

ANNIE
Why don't we talk to Lewis? Let's go to CAPCOM and ask her directly right now.

Vincent shoots Teddy a glance. After a moment, Teddy understands what it means.

TEDDY
No. If Watney is really alive... we don't want the *Ares 3* crew to know.

ANNIE
What? How can you not tell them?

TEDDY
They have another ten months on their trip home. Space travel is dangerous. We need them alert and undistracted.

ANNIE
They already think he's dead.

VINCENT
And they'd be devastated to find out they abandoned him alive.

ANNIE
You're on board with this?

VINCENT
We have to protect the crew. There's nothing they can do anyway. Let them deal with the emotional trauma when they're not trapped in a spaceship.

TEDDY
How do we handle the public?

ANNIE
We have twenty-four hours before we're required to release the pics.

TEDDY
We'll need to release a statement with them. We don't want people working it out on their own.

ANNIE
"Dear America. Remember that astronaut we thought we killed and had a nice funeral for? Turns out he's alive and we left him on Mars. Our bad. Sincerely, NASA."

CONTINUED: (2)

TEDDY
(stands up)
I need to get on a plane to Chicago.

VINCENT
(Why? Oh...)
Mark's parents.

TEDDY
(nods)
They should hear it from me before it breaks on the news.

ANNIE
They'll be happy to hear their son's alive, at least.

TEDDY
He's alive. But if my math is right, he's gonna starve to death long before we can help him.
(then)
I'm not exactly looking forward to that conversation.

Vincent's eyes drift to the images of Mars.

VINCENT
Can you even imagine what he's going through? He's fifty million miles from home. He thinks he's totally alone and that we all gave up on him. What kind of effect does that have on a man's psychology?
(then)
What's he thinking about right now?

EXT. SPACE - MARS - TO ESTABLISH

MARK (PRELAP)
I'm gonna die up here...

INT. HAB - DAY

Mark stares directly into camera.

MARK
...if I have to listen to any more goddamn disco music.

We now notice that Vicki Sue Robinson's "Turn the Beat Around" is playing on the computer.

CONTINUED:

MARK (CONT'D)
Jesus, Commander Lewis, you couldn't have packed anything from this century?
(then)
I'm not turning the beat around. I refuse to.

CUT TO:

INT. HAB - NIGHT

Mark sits at his work station, checking A MAP of Mars while he makes calculations.

TITLE: Sol 70

MARK (V.O.)
It's time to start thinking long term. The next NASA mission is Ares 4. It's supposed to land at the Schiaparelli Crater, 3,200 km away.

We see Mark trace a route from his position to the crater.

MARK (V.O.)
NASA presupplies each mission years in advance, so the MAV is already there, synthesizing fuel. In four years when the Hermes returns, I'll have to launch from there. Which means I gotta get to the crater.

EXT. HAB - DAY

Quick cuts. Mark rips the (VERY large) battery out of Rover 1 and drags it over to Rover 2. Stares at it. *Where am I gonna put this?*

INT. HAB - NIGHT

Mark speaks directly to camera.

MARK
But here's the rub. I've got two rovers designed to go a max distance of 35 kilometers before they need to be recharged at the Hab. That's problem A. Problem B is it'll take me... roughly fifty days to make the journey. So I have to be able to live for fifty days. Inside a rover with marginal life support the size of a small van.
(MORE)

(CONTINUED)

CONTINUED:

MARK (CONT'D)
And yeah, problem C is if I don't figure out how to make contact with NASA in the first place, none of this matters anyway. So... yes, in the face of overwhelming odds, I am left with only one option:
(then)
I'm gonna have to science the shit out of this.

MUSIC UP: The bouncing bass line of "Rubberband Man" by The Spinners carries us through --

EXT. HAB - DAY

-- Mark attaches the battery to Rover 2 with a makeshift harness.

EXT. HAB - DUSK

-- Mark sits behind the wheel of his wagon train. Takes it for a test drive. It's not pretty, but the spare battery HOLDS. As do the solar cells.

INT. ROVER - NIGHT

Mark speaks to the camera. His teeth are chattering.

MARK
Okay, so... success? I've doubled my battery life by scavenging Rover 1. BUT. If I use the heater, it'll eat up half my battery power every day. If I don't use the heater, I will be slowly killed by the laws of thermodynamics.
(tries to stop shaking)
I'd like to solve this problem, but unfortunately my brain is frozen.

Mark drives back towards the Hab.

EXT. MARS - DAY

Mark drives the Rover across Acidalia Planitia. IN THE DISTANCE: a GREEN FLAG is planted at the top of a hill.

MARK (V.O.)
Good news: I may have a solution to my heating problem.

Mark climbs the hill.

MARK (V.O.)
Bad news: it involves me digging up the Radioisotope Thermoelectric Generator.
(MORE)

(CONTINUED)

CONTINUED:

MARK (V.O.) (CONT'D)
Now, if I remember my training correctly, one of the lessons was titled, "Don't Dig Up The Big Box of Plutonium, Mark..."

Mark begins to dig up the big box of plutonium.

MARK (V.O.)
I get it. RTGs are good for spacecraft, but if they rupture around humans... no more humans. Which is why we buried it when we arrived. And planted that flag so we would never be stupid enough to accidentally go near it again.

Mark unearths the RTG. It looks like a small missile.

MARK
But. As long as I don't break it...
(hesitates)
I almost said "everything will be fine" out loud. My point is...

INT. ROVER - DAY

Mark talks to camera while he drives the rover. He's covered in sweat. He even has his shirt off.

MARK
I'm not cold anymore. And yes, I could choose to think about the fact that I'm warm because I have a decaying radioactive isotope riding shotgun next to me, but right now I have bigger problems on my hands. I've scoured every single data file on Commander Lewis' personal drive, and this is officially the LEAST disco song she owns.

Mark hits play on the computer. "Hot Stuff" by Donna Summer starts playing. It's super disco-y. Mark drives, stone-faced, while it plays.

EXT. MARS - DAY

The rover heads towards the Hab in the distance, growing smaller and smaller in frame. *Gotta have some HOT LOVE baby this evening... Hot hot hot hot... stuff...*

INT. NASA - PRESS ROOM - DAY

SATELLITE IMAGERY: from above, Mark's rover cuts across Mars.

REPORTER 1
Where is Watney going?

(CONTINUED)

CONTINUED:

A CNN REPORTER conducts an interview with Vincent in the NASA MEDIA ROOM. Annie watches like a nervous stage mom.

VINCENT
We believe he's preparing for a journey. He's conducting incremental tests -- taking Rover 2 out for longer and longer trips each time.

REPORTER 2
To what end? Why would he leave the relative safety of the Hab?

VINCENT
Communication. We believe he plans to travel to the Ares 4 launch site in order to make contact with us. But it would be a dangerous gamble.

REPORTER 3
He'd be risking his life to talk to you?

VINCENT
(nods)
This is the problem Mark faces. He's alone. And he needs to make contact to survive. But if we could talk to him, we'd tell him to stay put. Mark needs to trust we're doing everything in our power to bring him home alive.

INT. NASA - DAY

Venkat walks quickly down the halls with Annie...

ANNIE
Don't say "Bring him home alive." It reminds the world he might die.

VENKAT
You think people might forget that?

ANNIE
You asked how you did and I'm giving you my answer. My answer is "Eh." And yes, I'm going to make everyone forget there's a strong likelihood Mark Watney is going to die because that's what you pay me for and unfortunately I need this job because I'm currently paying alimony to two deadbeat ex-husbands because somehow gender equality has bitten me square in the ass.

CONTINUED:

VENKAT
Hard to believe tha--

ANNIE
I left them.

INT. NASA - CONFERENCE ROOM - DAY

Vincent and Annie enter just as the rest of the Department Heads are settling for the meeting. Teddy glances up --

TEDDY
Don't say "Bring him home alive," Vincent.

VINCENT
You know, these interviews aren't easy. God forbid I try to say something proactive and positive.

TEDDY
Annie...

ANNIE
No more Vincent on television. Copy that.

Vincent starts to muster an "are you kidding me?" as Mindy passes out a brief to the department heads.

TEDDY
Seventy-six kilometers. Am I reading that right?

Nobody's quite sure who Teddy is asking.

MINDY
Are you asking me?

TEDDY
I am.

MINDY
Yes, sir. Mark drove straight away from the Hab for almost two hours, did a short EVA, then drove for another two. We think the EVA was to change batteries.

A man who seems to embody the word "gruff" stares at Mindy over his brief. *Who is this kid?*

GRUFF MAN
Are we doing a daddy/daughter thing today? Where's the Director of SatCon?

(CONTINUED)

CONTINUED:

TITLE: MITCH HENDERSON, Hermes Flight Director, NASA

VINCENT
Ms. Park is the person who figured out Mark was alive in the first place. She's in charge of tracking him now.

TEDDY
Quit being a dick, Mitch. Where's Mark going? Is this another test?

MINDY
He's seventy-six kilometers away from the Hab. If it's a test and it doesn't work... he's dead.

TEDDY
He didn't load up the Oxygenator or the Water Reclaimer?

MINDY
I didn't see that happen, no sir.

TEDDY
You didn't see it?

MINDY
Every forty-one hours, we have a seventeen minute gap. It's just the way the orbits work. So... it's possible we missed something.

TEDDY
I want that gap down to four minutes. I'm giving you total authority over satellite trajectories and orbital adjustments. Make it happen.

MINDY
(um...)
Okay.

TEDDY
Let's assume Ms. Park didn't miss something, so Mark's not going to Ares 4. Yet. But he's smart enough to figure out that's his only chance. Bruce, what's the earliest we could get a presupply there?

Teddy looks to the brilliant-but-constantly-harried man skyping in on the computer screens.

TITLE: BRUCE NG, Director, Jet Propulsion Laboratory.

(CONTINUED)

CONTINUED: (2)

BRUCE
With the positions of Earth and Mars, it'll take nine months. And it'll take us six months to build it in the first place.

TEDDY
Three months.
(off Bruce)
You're gonna say that's impossible, then I'm gonna give a speech about the blinding capabilities of the JPL team. And then you'll do the math in your head and say something like "The overtime alone will be a nightmare."

BRUCE
(oh god I didn't even think of that)
The overtime will be a nightmare.

TEDDY
Get started. I'll find you the money.

MITCH
It's time to tell the crew.

VINCENT
Mitch, we discussed this.

MITCH
You discussed this. But I'm the one who decides what's best for the crew. They deserve to know.

TEDDY
Sorry, Mitch. I'm with Vincent. They need to concentrate on getting home.

MITCH
Bullshit.

TEDDY
Once we have a real rescue plan, we'll tell them. Otherwise it's moot. Bruce has three months to get the payload done. That's all that matters right now.

BRUCE
We'll do our best.

TEDDY
Mark dies if you don't.

INT. HAB - NIGHT

The Hab has been TRANSFORMED into a makeshift GREENHOUSE. Plants sprout everywhere. Mark uproots some of the potatoes, cuts them in pieces. Replants them.

TITLE: Sol 79

MARK (V.O.)
It's been 48 sols since I planted the potatoes, so now its time to reap and re-sow. They grew even better than I expected. I now have 400 healthy potato plants. The smaller ones I'll re-seed. The larger ones are my food supply. All natural, organic, Martian-grown potatoes. You don't hear that every day, do you?
(then)
But, by the way, none of this matters, at all, if I don't figure out how to make contact with NASA...

INT. HAB - NIGHT

Back to work. Mark sits at the table, studies his maps. He can't crack the problem. *C'mon, Mark, think...*

Then it hits him. He zooms in on the map. We catch a glimpse of two words: "Chryse Planitia." Mark leaps from his chair. Studies the map up close.

He nods. Whispers to himself. *Okay...*

MARK
I know what I'm gonna do.

INT. NASA - MISSION CONTROL - NIGHT

SATELLITE VIEW: Mark's Rover 2 cuts through Mars.

MINDY
He's on the move again --

Vincent huddles over Mindy's screen.

VINCENT
Where the hell is he going? He hasn't changed course in thirteen days. And he's nowhere near course for Ares 4...

MINDY
Unless he's not taking a direct route. Maybe he's trying to avoid some obstacle...

(CONTINUED)

CONTINUED:

VINCENT
What obstacle? It's Acidalia Planitia. There's nothing out there but --

Vincent stops short. Mindy looks at him: what?

VINCENT (CONT'D)
I need a map.

Vincent bolts away. Mindy follows.

INT. NASA - BREAKROOM - NIGHT

Vincent hurries into the employee break room. A lone TECHNICIAN sits, sipping coffee. ON THE BACK WALL: a large poster of Mars (the type they sell in gift shops.)

Vincent rips the poster off the wall.

TECHNICIAN
Hey -- c'mon --

VINCENT
I'll buy you a new one.
(to Mindy)
What's the Hab's location?

MINDY
31.2 degrees north, 28.5 degrees west.

Vincent marks it off on the map with a sharpie. Draws Mark's location. He needs a ruler. Looks around, grabs the Technician's notebook out of his hands. Uses the spine to connect the dots. Studies it. Grins.

VINCENT
I know where he's going.

Vincent, lost in his own world now, bolts for his office. As he hurries away (leaving Mindy and the Technician behind):

VINCENT (CONT'D)
I need to get on an airplane!

TECHNICIAN
Who's he talking to?

MINDY
I'm honestly not sure.

EXT. MARS - DAY

Mark's Rover 2 crests a hill, approaching HIS DESTINATION:

CONTINUED:

There, buried in a mound of Martian sand, we catch a glint of metal in the sunlight.

As Mark drives towards it...

INT. JPL LOBBY - DAY

Bruce waits in the lobby as Vincent walks through the front doors.

TITLE: Jet Propulsion Laboratory, Pasadena, California

They shake hands.

INT/EXT. JPL STORAGE - DAY

Bruce and Vincent hurry across the JPL campus. In the background, deer frolic. (NOTE: This is real. Deer frolic out in the open on the JPL grounds. NOTE: It's awesome.)

VINCENT
What are the odds Mark can get it working again?

BRUCE
Hard to say. We lost contact in '97. We think it was battery failure.
(then)
Though I'd like to point out it lasted three times longer than expected in any scenario.

VINCENT
Nobody's criticizing JPL's work, Bruce. I want talk to everyone who was here in '97.

BRUCE
They're already waiting for you.

EXT. MARS - DAY

Mark, on foot now, digs at the location. As he begins to reveal the buried metal...

INT. JPL - GARAGE

Vincent and Bruce enter the cavernous JPL garage. A large crowd mills around an APPARATUS covered by a sheet.

VINCENT
This the replica?

Bruce nods, pulls off the sheet to reveal...

CONTINUED:

VINCENT (CONT'D)
Pathfinder.

The American spacecraft launched in 1996. It's in two notable sections -- the large LANDER and the smaller SOJOURNER ROVER.

Vincent's eyes gleam as he stares at the craft.

EXT. MARS - DAY

Mark has now uncovered Pathfinder. He stares at it with a similar gleam in his eye. Then he drags the Lander to the back of Rover 2, begins lashing it to a makeshift hitch...

TITLE: Sol 109

EXT. HAB - DAY

Sojourner now sits beside the workbench outside the Hab, watching as Mark methodically takes apart the Lander.

It looks like he's been at this a while. He removes the battery, replaces it with an environment heater. Like a surgeon performing a heart transplant.

He locks the heater into place, and as it CLICKS we --

CUT TO BLACK.

INT. JPL GARAGE - DAY

Titles (s)

PATHFINDER LOG: SOL 0 BOOT SEQUENCE INITIATED TIME 00:00:00 LOADING OS... PERFORMING HARDWARE CHECK... INT TEMPERATURE: -34C, EXT TEMPERATURE: NONFUNCTIONAL, BATTERY: FULL, HIGAIN: Okay, LOGAIN: Okay, METEOROLOGY: NONFUNCTIONAL, SOLAR A: NONFUNCTIONAL, SOLAR B: NONFUNCTIONAL, SOLAR C: NONFUNCTIONAL, HARDWARE CHECK COMPLETE

THEN:

BROADCASTING STATUS

LISTENING FOR TELEMETRY SIGNAL...

LISTENING FOR TELEMETRY SIGNAL...

LISTENING FOR TELEMETRY SIGNAL...

THEN:

SIGNAL ACQUIRED.

INT. JPL GARAGE - DAY

Vincent, Bruce, and the JPL team see the words come up on the main screen. The room begins to BUZZ...

EXT. HAB - DAY

Mark stares at the high gain antenna on the Lander. It starts to MOVE... angling towards Earth.

Mark begins to dance.

INT. JPL GARAGE - DAY

Vincent and Bruce cluster around the station of TIM GRIMES.

TIM
As soon as I received the high-gain response, I directed Pathfinder to take a panoramic image.

VINCENT
Have you received it yet?

TIM
Yes, but I thought we would all rather look at this black screen instead of a vibrant red planet.

BRUCE
(off Vincent's look)
Tim is our finest comm tech, and we all appreciate his acerbic wit.

Bruce mouths "I will fire you" to Tim.

TIM
Incoming.

ON THE SCREENS: the panoramic starts to appear, one vertical stripe at a time.

VINCENT
Martian surface... more surface...

BRUCE
There's the Hab!

VINCENT
What's that?

The image reveals a handwritten note, posted on a metal rod.

CONTINUED:

VINCENT (CONT'D)
"I'll write messages here. Are you receiving?"

The image reveals two more notes, spaced a few feet apart.

VINCENT (CONT'D)
"Point here for yes." "Point here for no."

TIM
Thirty-two minute round trip communications time. He can only ask yes/no questions, and all we can do is point the camera. This won't exactly be an Algonquin round table of snappy repartee.

BRUCE
Tim.

TIM
Roger that. Pointing the camera...

EXT. MARS - DAY

Mark watches as the camera moves towards one of his notes. We ANGLE IN on the paper, focusing on one word in particular:

"YES."

MARK (PRELAP)
So here's the rub...

INT. HAB - DAY

Mark addresses camera.

MARK
Somehow, we need to have complex astrophysical engineering conversations using only a still-frame camera. From 1996. Luckily, the camera spins 360, so I can make an alphabet. I just can't use our alphabet. Twenty-six letters plus question card into 360 gives us 13 degrees of arc. Too narrow. I wouldn't know what the camera was pointing at. So. Hexadecimals to the rescue...

EXT. HAB - DAY

Mark methodically sets up cards marked "A-F" and "0-9" in a circle around the camera.

CONTINUED:

MARK (V.O.)
I figured one of you guys kept an ASCII table somewhere...

INT. HAB - DAY

Mark sits in Johanssen's bunk. Scrolling through her laptop.

MARK (V.O.)
Ladies and Gentlemen, I give you supernerd Beth Johanssen, who also had copies of Zork 2 and Leather Goddesses of Phobos on her laptop. Seriously, Johanssen... it's like the Smithsonian of loneliness on there...

INT. JPL GARAGE - DAY

Tim consults an ASCII chart as he points the camera...

EXT. HAB - DAY

The camera swings from card to card...

MARK (V.O.)
Not that I'm complaining.

INT. HAB - DAY

Mark translates the numbers with his ASCII table:

"HOW ALIVE"

Mark ponders the question. Begins writing his response.

INT. JPL GARAGE - NIGHT

"**Impaled by antenna. Bio-monitor destroyed. Crew had reason to think me dead. Not their fault.**"

INT. ROVER - NIGHT

Mark inputs the code into the rover's computer.

WATNEY (V.O.)
Now that we can have more complicated conversations, the smart people at NASA have sent me instructions on how to hack the rover so that it can talk to Pathfinder. If I hack a tiny bit of code, just twenty instructions in the Rover's operating system, NASA can link the rover to Pathfinder's broadcasting frequency... and we're in business.

(CONTINUED)

CONTINUED:

Mark waits patiently at the computer.

Text pops up on Mark's screen. As he reads:

VENKAT (V.O.)
"Mark, this is Vincent Kapoor...

INT. JPL - GARAGE - NIGHT

Vincent and Bruce huddle around Tim's console while Vincent dictates and Tim types.

VINCENT
We've been watching you since Sol 54...

INT. NASA - MISSION CONTROL - NIGHT

Teddy, Mitch, Annie, and the rest of the team watch Vincent's text cross the screen.

VINCENT (V.O.)
"The whole world is rooting for you. Amazing job, getting Pathfinder. We're working on rescue plans. Meantime..."

INT. ROVER - NIGHT

Mark reads the text. His first human contact in quite some time.

VINCENT (V.O.)
"We're putting together a supply mission to keep you fed until Ares 4 arrives."

INT. JPL GARAGE - NIGHT

Vincent and Bruce huddle around Tim's console.

TIM
(reading)
"Glad to hear it. Really looking forward to not dying."

Everyone laughs, cheers. Tim notices *there's more...*

TIM (CONT'D)
"How's the crew? What did they say when they found out I was alive?"

Vincent and Bruce share a glance. Vincent thinks about it.

BRUCE
Tell him. Hm. Tell him...

INT. ROVER - NIGHT

Mark watches the text pop up onscreen:

VINCENT (V.O.)
"We haven't told the crew you're alive yet. We need them to concentrate on the mission."

INT. JPL GARAGE - NIGHT

The whole room waits patiently. Tim reads the response.

TIM
He says... "They don't know I'm alive? What the--"
(hesitates)
"What the... f-word... f-word in gerund form... f-word again... is wrong with you... f-words."

VINCENT
Mark, please watch your language...

INT. ROVER - NIGHT

Mark reads the response.

VINCENT (V.O.)
Everything you type is being broadcast live all over the world.

Mark's eyes narrow as he types his response. Hits ENTER.

INT. JPL GARAGE - NIGHT

The group reads Mark's response. They go PALE. *Oh, Jesus.* Vincent hangs his head. Tim tries not to smile and fails.

INT. NASA - TEDDY'S OFFICE - NIGHT

Teddy is on the phone as Mitch approaches.

TEDDY (INTO PHONE)
Yes sir... he's under a tremendous amount of stress... I understand. We're working on it. Thank you, sir.

Teddy hangs up. Glances at Mitch.

TEDDY (CONT'D)
I just had to explain to the President of the United States what a "bureaucratic felcher" is.

CONTINUED:

MITCH
I made the mistake of typing it into Google.
(off Teddy's look)
Don't.
(then)
Problem is, Mark's right. This is only gonna get worse the longer we wait. We need to tell the crew.

TEDDY
You're bringing this up while Vincent's in Pasadena so he can't argue the other side.

MITCH
I shouldn't have to clear this with you or Vincent or anyone else.
(then)
It's time, Teddy.

Teddy thinks about it.

EXT. HERMES - PRESENT - SPACE

THE HERMES: the massive spacecraft makes its way through space on its long journey back to Earth.

TITLE: Four Months Since Mars Departure

We ANGLE towards one of the windows to FIND COMMANDER LEWIS staring out at the starfield...

JOHANSSEN (O.S.)
Commander Lewis...

INT. HERMES - FLIGHT DECK - SPACE

Lewis is alone, in a secluded section of the ship. She keys the console.

LEWIS
Go ahead.

JOHANSSEN (OVER RADIO)
Data dump is almost complete.

LEWIS
Copy. Coming to you.

INT. HERMES - CORRIDOR - SPACE

Lewis floats towards the Semicone-A ladder. MARTINEZ beats her there. As he floats up the ladder...

CONTINUED:

LEWIS
You're in a hurry.

MARTINEZ
My son turned three yesterday. Should be some pics of the party.

As they make their way down the ladder, the centripetal force from the rotating craft creates artificial gravity. Halfway down, they have to use their hands on the ladder...

INT. HERMES - REC ROOM - SPACE

Lewis and Martinez enter the Rec Room. The others are already there -- the data dump is the highlight of the day.

JOHANSSEN
All right, we've got a batch of personals. Dispatching them to your laptops... I don't need to read Vogel's weird German fetish emails...

VOGEL
They are telemetry updates.

JOHANSSEN
Whatever does it for you. We've got a system update, I'll take care of that, and... huh. There's a voice message. Addressed to the whole crew.

LEWIS
(shrugs)
Play it.

Johanssen opens the message. Hits play.

MITCH (MESSAGE)
Hermes, this is Mitch Henderson. I have some news. There's no subtle way to put this: Mark Watney is still alive.

The news hits the crew like a freight train.

MITCH (MESSAGE) (CONT'D)
I know that's a surprise. And I know you'll have a lot of questions. Here are the basics: he's alive and healthy. We found out two months ago and decided not to tell you. I was strongly against that decision. We're telling you now because we finally have communication with him and a viable rescue plan.
(MORE)

(CONTINUED)

CONTINUED:

MITCH (MESSAGE) (CONT'D) *We'll get you a full write up of what happened, but it's not your fault. Mark stresses that every time it comes up. Take some time to absorb this. Your science schedules are cleared for tomorrow. Send all the questions you want and we'll answer them. Henderson out.*

For a moment the group sits in stunned silence.

MARTINEZ
He... He's alive?

Vogel cracks a smile.

VOGEL
Watney lives.

Beck starts to laugh. Relief pouring out of him.

BECK
Holy shit. Commander! He's alive!

But Lewis is still in shock. Her words barely a whisper:

LEWIS
I left him behind.

JOHANSSEN
Commander... it wasn't...

BECK
We all left together.

LEWIS
You were following orders.
(then)
I left him behind.

The group trades glances, but nobody knows what to say.

Without another word, Lewis turns and exits the room.

EXT. MARS - SPACE - TO ESTABLISH

TITLE: Sol 128

INT. HAB - DAY

Mark removes water from the water reclaimer. Goes down the rows of plants, watering one by one.

CONTINUED:

MARK (PRELAP)
Now that NASA can talk to me, they won't shut up...

INT. HAB - DAY

Mark talks to camera.

MARK
They've got a room full of people trying to micromanage my crops. Which is awesome. Look, I don't mean to sound arrogant here, but I'm the best botanist on the planet. So.

Mark adjusts the camera to show more of the lab. We see the lush greenery of the potato plants EVERYWHERE.

MARK (CONT'D)
In other news, there's been a request for me to pose for a picture on the next transmission. I'm debating between "High School Senior..."

Mark leans one elbow against an imaginary pillar and hooks his other thumb on his imaginary belt loops.

MARK (CONT'D)
And "Coquettish Ingenue..."

Mark turns his back to camera, looks at us over his shoulder, and bites on his thumb suggestively.

MARK (CONT'D)
But I'm not sure how that will translate with the spacesuit on.
(then)
One big bonus of this NASA communication: Email! Just like the days on the Hermes, I get data dumps. Not just friends and family, but NASA also sends choice messages from the public. Rock stars, athletes, even The President. The coolest one is from my alma mater, the University of Chicago. They say once you grow crops somewhere, you have officially "colonized" it. So, technically, I colonized Mars.
(then)
In your face, Neil Armstrong.

MUSIC UP: "Right Back Where We Started From" by Maxine Nightingale takes us into...

EXT. HAB - DAY

-- Mark stands outside in his suit. Positions himself in front of the camera. Holds up a notecard. We're behind him, we don't see what the notecard says. As he poses --

CUT TO:

INT. NASA - CONFERENCE ROOM - DAY

Annie tosses a photo on the conference room table:

Mark, in his spacesuit, gives the camera a big thumbs-up. He holds up a note that says, "Ayyyyyyy!"

ANNIE
I ask for a picture and I get the goddamn Fonz?

Vincent and Bruce are both on monitors from JPL.

VINCENT (ONSCREEN)
Just be grateful you got something, Annie.

ANNIE
It's not gonna work. I need something with less-Happy-Days and more... Mark's face.

VINCENT (ONSCREEN)
I could tell him to take his helmet off, but then he'd, you know, die.

TEDDY
Let's release the photo when we detail the rescue operation. I want to announce we're launching some supplies to him next year during the Hohmann Transfer window.

VINCENT (ONSCREEN)
I'm on a plane to you this afternoon. We'll have the release ready.

TEDDY
Good, but Annie will handle camera appearances.

Vincent gives a look that says "Et tu, Teddy?"

TEDDY (CONT'D)
Bruce, is your team still on schedule?

(CONTINUED)

CONTINUED:

BRUCE (ONSCREEN)
It'll be tight. But we'll make it.

TEDDY
Nine-month travel time, that puts the probe to Mars on Sol 868. Did we get the Botany Team's analysis?

VINCENT (ONSCREEN)
They estimate Mark's crops will last him until Sol 912. They grudgingly admit Mark is doing great work.

MITCH
Grudgingly?

VINCENT (ONSCREEN)
Mark has a tendency to tell them to have sex with themselves whenever they question one of his decisions.

TEDDY
Get him in line, Vincent. We can't afford any miscommunication. I hate this margin. 912 sols worth of food. We get there on 868. And that's assuming nothing goes wrong...

EXT/ INT. HAB AIRLOCK - DUSK

Mark finishes putting on his spacesuit. Snaps his helmet into place. Grabs his toolkit.

Mark steps into the airlock. Closes the door behind him. As he does, we begin ANGLING towards the carbon-thread canvas lining the side of the airlock.

As the depressurization process begins, the canvas starts to STRETCH...

And the sheet RIPS.

The Hab *breaches*. In one-tenth of a second, the tear travels the length of the airlock --

The full force of the Hab's atmosphere rushes through the breach...

KAAAA-BOOOOM!

The airlock (with Mark in it) is LAUNCHED LIKE A CANNONBALL. It flies forty meters through the air --

INT. HAB - DUSK

QUICK SLO-MO SHOT as the crops inside the HAB are DESTROYED in the depressurization.

INT/EXT. AIRLOCK - DUSK

RAMP to regular speed --

WHAM! The airlock hits the hillside -- Mark's body SLAMS into the wall -- his faceplate SHATTERS -- the airlock FLIPS and TUMBLES down the hill. Mark is tossed around inside like a ragdoll in a washing machine.

The airlock rolls another fifteen meters...

And comes to a stop.

INT. AIRLOCK - DUSK

Panicked breaths. Ringing ears.

Mark struggles to stay conscious. His head bleeding. *Jesus Christ. What just happened?*

He looks through the window. Sees the collapsed Hab. The debris of ruined equipment scattering the field between them.

Psssssshhhhhhh...

Mark wipes the blood from his brow, rolls to his knees. Struggles out of his suit. Checks his wounds. He's alive.

Psssssshhhhhhh...

What the hell is that sound?

Air.

The airlock is leaking.

Mark's heart starts to pound. He searches frantically for the leak, checking every seam, every inch of fabric...

Psssssshhhhhhh...

Mark checks his arm computer. Oxygen flow steady. This will keep him alive. For now. But he has to find that leak...

Think, Watney. *How do you find an invisible leak?*

He does an inventory. He has his toolkit. He has the patch kit from his suit. *Think, Watney...*

CONTINUED:

It hits him.

He pulls the knife out of the toolkit...

And cuts his own hair.

He hacks a chunk clean out of it. Holds the loose hair tight. Then he goes back to the arm computer. BOOSTS the oxygen flow. *Now, all I need is a spark...*

Yanks the WIRES from the power generator free. Strips the casing. *Here goes nothing...*

He holds the wires in the oxygen flow, rubs them together to create a SPARK. WHOOSH. He lights the hair on fire, creating the key to his plan:

SMOKE.

Mark holds his breath. Watches the smoke wisp and curl towards the floor...

Heading right through the microscopic TEAR in the fabric.

Mark grins. *I've got you.* Goes back to the toolkit. Finds that old stalwart of every NASA space mission: *Duct tape.*

He tears a piece free. Seals the hole. The hissing stops. Mark breathes. Okay...

Now what?

CUT TO:

Mark cuts off one of the arms from his EVA suit. Cuts it into one square piece. Opens the patch kit. Works fast to glue the square over the area where the faceplate used to be. Then glues the arm-hole shut.

CUT TO:

WHAM! Mark slams his back into the airlock wall, hitting it with enough force so that...

The airlock ROLLS.

It's clumsy -- like rolling a phone booth from inside -- but it works. The airlock rolls a little less than a meter.

Mark takes a breath. Girds himself to do it again...

INT/EXT. AIRLOCK/HAB - NIGHT

The airlock has traveled the fifty meters so that it's now close to the Hab.

Mark exits the airlock. He's wearing the patched-up suit. Which means his faceplate is completely covered with fabric, and he only has one arm free.

He points the free arm in front of him and begins to walk.

INSIDE THE SUIT:

Mark is using the camera in his arm computer to navigate. The camera projects an image onto the inside of the faceplate. Which is now fabric. It's crude, but it'll work.

MARK'S POV: Mark hurries through the rip in the airlock. Stumbles through the deflated Hab, past the mess of debris, heading for the bunk. Finds what he's looking for...

Martinez' SUIT.

INT. HAB - NIGHT

Mark stands in the center of the Hab. We finally get a good look at it. And it's A MESS. Equipment overturned, debris everywhere. But the worst part?

Mark's crops are RUINED.

Mark stares at the disaster of frozen soil and uprooted plants. All his work. His *lifeline*. Destroyed.

He stares at the mess for a long time.

Then he begins to clean it up.

INT. ROVER - NIGHT

Mark sits at the keypad. Takes a moment to compose his words. *God, how do I explain this?* As he begins to type...

VINCENT (PRELAP)
The crops are dead...

INT. NASA - CONFERENCE ROOM - NIGHT

Vincent, Teddy, Annie and a team of others study the analysis reports. Mood is somber.

VINCENT
Complete loss of pressure boiled off most of the water.
(MORE)

(CONTINUED)

CONTINUED:

VINCENT (CONT'D)
Any bacteria that survived, died in the sub-zero temperatures when exposed to Mars' atmosphere.

ANNIE
How long does he have?

VINCENT
He can still eat the potatoes he has, he just can't grow any more. We estimate they'll give him about 200 sols.

TEDDY
And rations get him to what? Sol 409?

VINCENT
(nods)
So with potatoes he can stretch to 609.

ANNIE
By Sol 868 he'll be long dead.

TEDDY
We're gonna have to launch as soon as possible. Which changes our travel time.

MITCH
We're working on it. Prelim estimates call for a four-hundred fourteen day trip.

TEDDY
(does math)
It's Sol 135 now. We need thirteen days to mount the boosters and perform inspections. Which gives Bruce and his team...
(fuck)
Forty-seven days to make this probe.

ANNIE
How long does it normally take?

VINCENT
Six months. Minimum.

TEDDY
I'm gonna let you call Bruce and give him the news.

INT. JPL BULLPEN - NIGHT

Bruce and his team sit around a speakerphone. They've just hung up with Vincent. Everyone looks suitably SHELLSHOCKED.

CONTINUED:

BRUCE
Okay.
(long pause)
Okay.

Everyone is at a loss for words. You might as well have told this team they have to build a unicorn.

BRUCE (CONT'D)
I'm, uh... I'm gonna need a change of clothes. We're all gonna need a change of clothes.

EXT. HERMES - SPACE

The Hermes continues on its course back to Earth.

TITLE: Sol 136

MARTINEZ (PRELAP)
"Dear Mark..."

INT. HERMES REC ROOM - SPACE

Martinez types at his terminal.

MARTINEZ (V.O.)
"Apparently, NASA's letting us talk to you now, and I drew the short straw. Sorry we left you behind on Mars, but we don't like you."

INT. ROVER - NIGHT

Mark reads his email.

MARTINEZ (V.O.)
"Also, it's a lot roomier on the *Hermes* without you. We have to take turns doing your tasks, but it's only botany (not real science.) How's Mars?"

Mark types his response.

MARK (V.O.)
"Dear Martinez, Mars is fine. I accidentally blew up the Hab, but unfortunately all of Commander Lewis' disco music still survived."

INT. HERMES REC ROOM - SPACE

Martinez reads Mark's response.

CONTINUED:

MARTINEZ
"How's the Hermes? Cramped and claustrophobic? Every day I go outside and look at the vast horizons just because I can."
(then)
"Tell the others I said hello."

Martinez types. We see his response on his screen:

"**Will do.**"

EXT. HAB - DAY

Back to work. No choice. Mark clears the detritus from inside the Hab. Stares at the hole in the airlock.

INT./EXT. HAB - DAY

Mark covers the hole with Hab canvas. Begins strapping it in place with duct tape. Doubles up the tape in a circular pattern. Studies his work. It's not pretty, but with a little luck...

Mark repressurizes the Hab. Watches the canvas stretch as the pressure equalizes. He holds his breath...

The canvas holds.

INT. HAB - NIGHT

Mark takes inventory of his remaining potatoes. Outside, gusts of wind slam the canvas.

Mark tries to stay focused on the matter at hand. Tries not to think about the fact that his life is currently held together by duct tape.

Keep working, Mark...

INT. JPL - RICH'S OFFICE - NIGHT

A man sleeps in his office, half-on and half-off his small love seat. He snores ever-so-slightly.

TITLE: RICH PURNELL, ASTRODYNAMICS, NASA

On his computer screen, we see orbital computations running. Vectors between Earth and Mars cycle over and over.

VOICE (O.S.)
Rich?

MIKE WATKINS pokes his head in Rich's office. Rich stirs.

(CONTINUED)

CONTINUED:

MIKE
Rich? Wake up. Sorry, they're asking for the probe courses.

RICH
What time is it?

MIKE
3:42.

Rich nods. Grabs the old cup of coffee from his end table. Takes a big drink. His face registers shock. He opens his mouth and lets the coffee fall directly on the floor.

MIKE (CONT'D)
I know we're coming at this backwards, but we can't commit to a firm launch date with this many unknowns.

RICH
It's all right. All twenty-five models will take four-hundred fourteen days to reach Mars. They vary only slightly in thrust duration, and the fuel requirement is nearly identical.

MIKE
(looking at Rich's calculations)
Four-hundred fourteen days. Not an ideal time to launch, is it?

RICH
Earth and Mars are really badly positioned. Heck, it's almost easier to...

Rich trails off.

MIKE
Almost easier to what?

RICH
(lost in his head)
I need more coffee...

MIKE
Almost easier to what?

Rich walks out of the room.

MIKE (CONT'D)
You understand I'm your boss, right?

INT. NASA - MISSION CONTROL - DAY

Vincent dictates a message to Mark. Mindy types while he talks.

VINCENT
"...the probe will take 414 days to reach you, and will deliver enough food to last you to Ares 4."

MINDY
Tell him about the name.

VINCENT
"We've officially named the probe 'Iris'..."

INT. ROVER - DAY

Mark reads the message in the Rover.

VINCENT (V.O.)
"After the Greek goddess who traveled the heavens with the speed of wind. Among other things, she's also the goddess of rainbows."

Mark types his response...

INT. NASA - MISSION CONTROL - DAY

Mindy reads Mark's response on his screen as Vincent waits. Mindy suppresses a smile, throws it up on the main screens:

"Gay probe coming to save me. Got it."

INT. NASA - CONFERENCE ROOM - DAY

Teddy addresses the group from the head of the table.

TEDDY
Okay, let's ask the...
(consults his files)
Two hundred million dollar... sorry, five hundred... That's a "five?"
(off their looks)
Let's ask the very, very expensive question: is this probe gonna be ready on time?

Bruce looks noticeably more exhausted than everyone else.

BRUCE
We're behind.

(CONTINUED)

CONTINUED:

TEDDY
Give me a number.

BRUCE
Fifteen days. If I had another fifteen days, I could get it done.

TEDDY
All right, let's create fifteen days. Thirteen days to mount the probe. Can we reduce?

VINCENT
It... actually only takes three days to mount it. We can get that down to two. But the other ten are for testing and inspections.

TEDDY
How often do those inspections reveal a problem?

The room goes silent. Everyone trades nervous glances.

MITCH
Are you suggesting we don't do the inspections?

TEDDY
Right now I'm asking how often they reveal a problem.

VINCENT
About one in twenty launches. But that's grounds for a countdown halt. We can't take that chance.

TEDDY
Anyone else know a safer way to buy more time?

Nobody does.

TEDDY (CONT'D)
Tell Dr. Keller to stretch Watney's rations four more days. She won't like it, but that'll get us to fifteen. And we'll cancel the inspections.

VINCENT
Teddy...

CONTINUED: (2)

TEDDY
It's on me, Vincent.
(to Bruce)
You've got your two weeks. Get it done.

INT. HAB - DAY

Mark sits at the table. A ration pack and two potatoes in front of him. He talks to camera. He looks depressed.

TITLE: Sol 154

MARK
So. I have to hold out until the probe gets here with more food. And this is what "minimal calorie count" looks like.
(holds up the pack)
Standard issue ration. But instead of three every one day, I'm now eating one every three days.
(opens pack)
Oh good. Meatloaf.

He divides the meatloaf into thirds. Sets the majority aside. Focuses on what's left. Which is pathetic.

MARK (CONT'D)
This is today's allotment. Which I will supplement with potatoes. Which I am beginning to hate with the fiery passion of a thousand suns. And now I've been told to do this.

Mark hacks off even more of the meager ration and half of a potato and sets that aside. There's barely anything left.

MARK (CONT'D)
The point is, "Stretch the rations four more days" is a real dick-punch.

There are also two pills on the table. Mark crushes them.

MARK (CONT'D)
I'm dipping this potato in Vicodin and there's nothing anyone can do about it.

EXT. CAPE CANAVERAL - DAY

The IRIS PROBE, now mounted on the booster, is readied for launch. WATER VAPOR clouds the launchpad.

The final SUPPLIES are loaded into the probe.

INT. NASA - MISSION CONTROL - DAY

Full house. Mitch presides over the room, in his element.

MITCH
Do you believe in God, Vincent?

VINCENT
Several. My mother's Catholic and my father's Hindu.

MITCH
We'll take all the help we can get.

Mitch puts on his headset.

MITCH (CONT'D)
This is the Flight Director. Begin Launch Status Check.

LAUNCH CONTROL (OVER COMMS)
Roger that, Houston...

And as Mitch runs through the status check...

INT. NASA - MISSION CONTROL - DAY

Teddy watches the countdown clock from the observation room. He looks over what appears to be a SPEECH. We catch a few words, including, "*...successful launch...*"

Teddy closes the speech in a BLUE FOLDER. As the clock approaches 00:00:15....

MITCH (ON THE FLOOR)
This is Flight. We are go for launch on schedule.

TIMER CONTROLLER (V.O.)
10...9...

ON THE FLOOR: Vincent leans against the wall. Deep breath.

TIMER CONTROLLER (V.O.)
8...

INT. NASA - MISSION CONTROL - DAY

ANNIE paces in front of the NINE TELEVISIONS in her office.

TIMER CONTROLLER (V.O.)
7...6...

INT. JPL - CONTROL ROOM - DAY

BRUCE sits with his engineers, all in rapt attention.

TIMER CONTROLLER (V.O.)
5...4...

INT. JPL - RICH'S OFFICE - DAY

RICH PURNELL works on orbital calculations at his computer. Isn't paying attention to the launch at all.

TIMER CONTROLLER (V.O.)
3... 2...

EXT. CAPE CANAVERAL LAUNCHPAD - DAY

TIMER CONTROLLER (V.O.)
1...

LIFTOFF. Clamps RELEASE, the booster FIRES --

INT. NASA - MISSION CONTROL - DAY

TIMER CONTROLLER (V.O.)
...and liftoff of the Iris Supply Probe.

CHEERS course through the room.

While team members congratulate one another, the LAUNCHER INTERFACE frowns at his station.

LAUNCHER INTERFACE
Getting a little shimmy, Flight.

MITCH
Say again?

INT. HULL - DAY

A VIOLENT SHIMMY rattles the payload as the craft ACCELERATES. The bolt at the forefront CRACKS --

EXT. IRIS CRAFT - DAY

As the first stage depletes its fuel, it JETTISONS the stage-clamps. As the stage begins to fall away from the shimmying craft, it CATCHES HOLD, swinging unnaturally to the side.

The second stage engines IGNITE --

INT. HULL - DAY

WHOOSH -- the acceleration SHAKES the craft. The BOLT SHEARS CLEAN OFF -- the payload ROCKS -- THE OTHER FOUR BOLTS SNAP --

Iris slips from its supports, and SLAMS INTO THE HULL --

INT. NASA - CONTROL ROOM - DAY

ALARMS and LIGHTS flash across the consoles. A cacophony of urgent voices from the floor:

LAUNCHER INTERFACE
Whoa! Flight, we're getting a large precession!

GUIDANCE
Force on Iris at 7 G's.

TELEMETRY
Intermittent signal loss.

MITCH
Launch, what's happening?

LAUNCHER INTERFACE
It's spinning on the long axis with a 17 degree precession.

COMMS
We've lost readings on the probe, Flight.

MITCH
(goes cold)
Shit. It shook loose in the bay.

LAUNCHER INTERFACE
Loss of signal, Flight.

GUIDANCE
L.O.S. here, too.

TELEMETRY
Same here.

The voices go SILENT. The alarms BLARE. Then:

MITCH
SatCon?

SATCON
No satellite acquisition of signal.

Mitch looks to the main screen. It GOES BLACK, with LARGE WHITE LETTERS reading: "**L.O.S.**"

CAPCOM
Flight, US Destroyer Stockton reports debris falling from sky.

(CONTINUED)

CONTINUED:

ON THE SCREENS: cameras catch glimpses of debris trails falling from the sky.

Mitch puts his head in his hands.

MITCH
Roger.

Then Mitch Henderson says the words every Flight Director hopes he never has to say:

MITCH (CONT'D)
GC, Flight. Lock the doors.

INT. NASA - VINCENT'S OFFICE - NIGHT

Vincent sits in his office. NASA is eerily silent now. It's night. Vincent stares into space.

Click. He's been motionless so long, the sensors think the office is empty and shut off the lights.

Vincent shifts. The lights click back on.

A chime RINGS OUT on his computer. Vincent glances at the screen, sees a relayed message from Pathfinder:

"WATNEY: How'd the launch go?"

EXT. SPACE - TO ESTABLISH

The SOMBER REDS of MARS blaze against the spacescape.

TITLE: Sol 186

EXT. MARS - DAWN

Mark stands outside. The horizon reflects off his faceplate.

MARK (V.O.)
So, um. Commander Lewis. I need you to do something for me. If I die. I need you to check on my parents. They'll want to hear about our time on Mars first-hand. I'll need you to do that. It won't be easy talking to a couple about their dead son. It's a lot to ask; that's why I'm asking you. I'm not giving up. Just planning for every outcome. Please tell them I love what I do. And I'm really good at it. And I'm dying for something big and beautiful. And greater than me.
(MORE)

(CONTINUED)

CONTINUED:

MARK (V.O.) (CONT'D)
(then)
Tell them I said I can live with that.

EXT. CNSA - TO ESTABLISH - DAY

An impressive headquarters in the heart of Beijing.

TITLE: CHINA NATIONAL SPACE ADMINISTRATION

INT. CNSA - DAY

ONSCREEN: Teddy and Vincent answer questions from reporters.

VINCENT (ONSCREEN)
...we substituted protein cubes for the standard rations. The thrust of the launch, combined with the simultaneous lateral vibration, liquefied the cubes and created an unbalanced load.

REPORTER 4(ONSCREEN)
Why wasn't this accounted for in the inspection phase?

TEDDY (ONSCREEN)
In order to make our launch window, we were forced to accelerate our schedule.

REPORTER 4 (ONSCREEN)
You skipped the inspections?

TEDDY (ONSCREEN)
Yes.

We hear a MAN'S VOICE. He speaks in SUBTITLED CHINESE.

VOICE
Their astronaut is going to die.

Reveal A MAN AND A WOMAN watching the monitor. The voice belongs to:

TITLE: ZHU TAO, Under-Director, CNSA

ZHU
Perhaps. Perhaps not.
(hands Guo the brief)
The *Taiyang Shen*'s booster. Our engineers have run the numbers, and it has enough fuel for a Mars injection orbit.

TITLE: GUO MING, Director, CNSA

CONTINUED:

GUO
(are you kidding?)
Why hasn't NASA approached us?

ZHU
They don't know. Our booster technology is classified.

GUO
So if we do nothing...

ZHU
The world would never know we could have helped.

GUO
Then. Merely for the sake of argument, let's say we decide to help them...

ZHU
We'd be giving up a booster and effectively cancelling Taiyang Shen.

GUO considers this. But he's already made the decision...

GUO
We need to keep this among scientists. A cooperation between space agencies...

INT. NASA - TEDDY'S OFFICE - DAY

We're SLOWLY PUSHING IN on Teddy as he listens to the voice on the other end of the phone detail the terms.

Teddy closes his eyes. Relief washes over him. It takes him a moment to realize they're waiting for his answer.

TEDDY
Yes.

INT. JPL - BULLPEN - DAY

Bruce stands at the white boards, addressing his department heads. He's energized, writing like a madman while he talks:

BRUCE
All right, thanks to our friends in China, we get one more chance at this. We finished the Iris probe in sixty-three days. Now we get to do it again in twenty-eight...

INT. NASA - SUPER COMPUTER ROOM - DAY

Rich Purnell stares at the calculations on the screen. *Can these be right?* He runs the numbers again. As he sees the readout on his screen, he grins: *holy shit, I'm right.*

INT. NASA - HALLWAYS - DAY

Rich hurries through the halls.

INT. NASA - VINCENT'S OFFICE - DAY

Vincent's on the phone.

VINCENT
We're jettisoning any sort of landing system -- the idea is we're only sending rations, so they can crash land on Mars...

SECRETARY
Wait --

Rich barges into to Vincent's office.

RICH
You should hang up the phone.

VINCENT
I'm sorry -- who are you?

RICH
My name is Rich Purnell and I work in astrodynamics and you should hang up the phone right now.

VINCENT
(into phone)
I'll call you back.

Rich hands Vincent his summary.

INT. NASA - CONFERENCE ROOM - DAY

We're FOLLOWING ANNIE as she hurries into the briefing room. Vincent, Rich, Bruce, and Mitch are already there. Annie's reading the email on her phone.

ANNIE
What the hell is "Project Elrond?"

VINCENT
I had to make something up.

CONTINUED:

ANNIE
"Elrond?"

MITCH
(realizing)
Because it's a secret meeting.

ANNIE
How do you know that? Why does "Elrond" mean "secret meeting?"

BRUCE
The Council of Elrond. From Lord of the Rings. It's the meeting where they decide to destroy the One Ring.

ANNIE
I so quit right now.

TEDDY
(entering)
If we're calling something Project Elrond, I would like my codename to be "Glorfindel."

ANNIE
Oh my god I hate every one of you.

MITCH
Teddy doesn't even know what this is about?

VINCENT
Tell them exactly what you told me.

RICH
I can get the *Hermes* back to Mars by Sol 561.

Wait... what? Jesus. It's as though Rich just dropped a bomb in this room.

MITCH
What?

TEDDY
How?

Rich looks around. Grabs items off the table to demonstrate.

RICH
Okay... let's pretend this stapler is the *Hermes*. And you are... I'm sorry, what's your name again?

(CONTINUED)

CONTINUED: (2)

TEDDY
Teddy.
(then)
I'm the Director of NASA.

RICH
Okay, Teddy, you're Earth. And right now the *Hermes* is heading towards you and is about to start its month-long deceleration to intercept. But, instead, I'm proposing...
(demonstrates)
We start accelerating immediately, to preserve velocity and gain even more. We don't intercept Earth at all, but we come close enough to use a gravity assist to adjust course. While we're doing that...

He grabs the pen out of Teddy's pocket.

RICH (CONT'D)
We resupply with the probe --

VINCENT
The Taiyeng Shen.

RICH
Pick up whatever provisions we need... and then we're accelerating towards Mars.
(to Annie)
You're Mars. And we're going too fast at this point to fall into orbit, so it's a flyby.

BRUCE
What good is a flyby if we can't get Watney off the surface?

VINCENT
Watney would have to intercept using the MAV.

Vincent demonstrates, blasting his pen off of Annie's shoulder. Rich catches it, and points everything back towards Teddy...

RICH
And we head back home. I've done the math. It checks out.

The group sits in stunned silence. Teddy's the first one to grasp the full magnitude of what they've just proposed. He locks eyes with Vincent --

(CONTINUED)

CONTINUED: (3)

TEDDY
Rich?

RICH
Yes sir?

TEDDY
Get out.

And there's no mistaking Teddy's tone, so Rich does exactly that. After he leaves the room --

TEDDY (CONT'D)
Is he right?

VINCENT
I believe so.

TEDDY
And we need to use the Taiyeng Shen?

VINCENT
Yes.

ANNIE
What am I missing? Why is that important?

VINCENT
Because we can only do one.

TEDDY
Send Watney enough food to last until *Ares 4*, or send *Hermes* back to get him right now.

VINCENT
(nods)
Both plans require the *Taiyang Shen*, so we have to choose.

ANNIE
What about the *Hermes* crew? We'd be asking them to add...
(does the math)
533 days to their mission.

MITCH
They wouldn't hesitate. Not for a second. That's why Vincent called this meeting. He wants us to decide instead.

Vincent nods. That's correct.

(CONTINUED)

CONTINUED: (4)

MITCH (CONT'D)
Bullshit. It should be Commander Lewis' call.

VINCENT
It's a matter of life and death, Mitch. We need to make this decision.

MITCH
She's the Mission Commander. Life and death decisions are her damn job.

TEDDY
Can the *Hermes* function for 533 days beyond the scheduled mission end?

VINCENT
It should. The *Hermes* was made to do all five Ares missions, so it's only halfway through lifespan.

ANNIE
But if something went wrong...

VINCENT
We would lose the crew. And the Ares Program with them.

BRUCE
So... what? We either have a high chance of killing one person, or a low chance of killing six people. How do we make that decision?

VINCENT
We don't. Teddy does.

All eyes on Teddy now. The room sits in silence. Teddy thinks for a long time. Feeling the full burden of leadership. Then:

TEDDY
We still have the chance to bring five astronauts home safe and sound. I'm not risking their lives.

MITCH
Let them make that decision.

TEDDY
Mitch. We're going with option one.

Mitch stares at Teddy. Quietly seething.

(CONTINUED)

CONTINUED: (5)

MITCH
You goddamn coward.

EXT. HAB - DAY/DUSK

Mark trudges out of the airlock, goes about his routine. He walks over to the solar panels, starts to scrub them for (what seems like) the thousandth time...

And stops.

He can't do it anymore. He stares at them for a long time. Then drops the brush.

He walks to the top of the hill. Sits down.

He closes his eyes.

CUT TO:

Later. Mark hasn't moved. The sun is beginning to set. The temperature ALARM on his suit is beginning to BLARE. It gets cold FAST on Mars.

Mark overrides the alarm. Sits in the silence. As he glances back towards the setting sun, something METALLIC glints in the dust beneath him.

Hmm. Mark gets up. Walks towards it. It's Vogel's specimen drill. Dropped when the storm hit. Mark looks around, sees the HOLES drilled in the rock formation.

His fingers trace the unfinished work.

He picks up the drill.

INT. NASA - MISSION CONTROL - DAY

SATELLITE VIEW: We can see Mark making his way to the Rover.

MINDY
He's been doing EVAs throughout the day.

Vincent is hovering over Mindy's station.

MINDY (CONT'D)
There's a pattern to them. He goes out three hundred meters. Then stops. Three hundred more meters. Then stops.

VINCENT
And nobody gave him instructions? Did JPL schedule something?

(CONTINUED)

CONTINUED:

Mindy shakes her head.

MINDY
He's at the Rover.
(then)
We're receiving a transmission.

She pulls it up on the screen. Frowns. It's a jumble of numbers and data.

MINDY (CONT'D)
"Chem analysis... sample batch 1A-7C..."

Vincent's the first to figure it out.

VINCENT
Commander Lewis' geo-compositing experiments.

Mindy frowns. *I'm sorry, what?*

Vincent looks at the screens. Admiration in his eyes.

VINCENT (CONT'D)
He's finishing the mission.

INT. HAB - NIGHT

Mark addresses camera while he works at the experiment table, diligently crushing the rock samples and testing them with his chemistry set. Still somber. But he's working.

MARK
We evac'd eighteen sols into a thirty-one sol mission... Which means we've got thirteen sols of experiment and research schedules. For each of us. So. Commander Lewis... your work's in good hands. Beck -- I'll be honest with you, I don't understand chemolithotrophic detection. At all. But I'm doing my best. Johanssen, I know you don't like it when I touch the ChemCam, but guess what? I'm touching the ChemCam. Vogel, I think I've got a new cataloguing system for the core samples that I've titled "Das Core Samples" out of respect for the Fatherland. And Martinez... I still don't know what it is you do. Why did we bring you? No idea.
(then)
I'm trying to keep everything documented and organized.
(MORE)

(CONTINUED)

CONTINUED:

MARK (CONT'D)
I know that's not exactly my strong suit, but I want it all to make sense, in case... you know. Maybe you can teach it in class someday. The Watney Syllabus. "How to Make a Bathtub Using NASA Tubing and an Old RTG." "How to Cook a Potato Six-Thousand Different Ways." "How to Make Water Out of Rocket Fuel. To Keep You Alive. For Just A Little Longer."

INT. HERMES - FLIGHT DECK - SPACE

From his computer, Vogel runs a diagnostic check on the ship's engines. As he finishes his work for the day, he turns his attention to his Email. Frowns when he sees:

"**Subject:** *Unsere Kinder"*

Our children? That's strange. He tries to open the attachment, but it's unreadable.

INT. HERMES GYM - SPACE

Vogel glides along passage to the Rec Room. Johannsen jogs within the rotating drum. Vogel approaches.

VOGEL
I have a problem.

INT. HERMES GYM - SPACE

Johanssen leads Vogel into the gym.

VOGEL
It's an email from my wife. The subject line says "Our Children," but the computer won't open the attachment.

JOHANSSEN
Let's take a look.
(as she works)
Huh. This isn't a jpg. It's a plain ASCII text file. Looks like... I don't know what this looks like. Math equations. Does this make any sense to you?

VOGEL
(reads)
"Rich Purnell Maneuver." Ja. It is a course maneuver for the Hermes...

And as Vogel tries to make sense of what he's looking at, one phrase in particular stands out on the screen:

(CONTINUED)

CONTINUED:

"SOL 561."

VOGEL (CONT'D)
Mein Gott.

INT. HERMES REC ROOM - SPACE

All five crew members are seated around the main table in The Rec -- the cramped area of the ship used for personal time. Lewis finishes briefing the team.

LEWIS
...and the mission would conclude with Earth intercept 211 days later.

She gives the others a chance to absorb the news. They trade astonished glances.

MARTINEZ
Would this really work?

LEWIS
We ran the numbers. They check out.

VOGEL
(nods)
It's a brilliant course.

BECK
Why all the cloak and dagger?

LEWIS
NASA rejected the idea. They'd rather take a big risk on Watney than a small risk on all of us. Whoever snuck it in Vogel's email obviously disagreed.

MARTINEZ
So. We're talking about going directly against NASA's decision?

LEWIS
Yes. If we do the maneuver, they'll have to send the supply ship or we'll die. We have the opportunity to force their hand.

JOHANSSEN
Are we gonna do it?

LEWIS
If it were up to me, we'd already be on our way.

CONTINUED:

MARTINEZ
Isn't it? Up to you, I mean.

LEWIS
Not this time. This is something NASA expressly rejected. We're talking about mutiny. Which is not a word I use lightly. We do this together, or not at all. Before you answer, consider the consequences. If we mess up the supply rendezvous, we die. If we mess up the Earth gravity assist, we die. If we do everything perfectly, we add 533 days to our mission. 533 more days before we see our families again. 533 days of unplanned space travel where anything could go wrong. Something might break that we can't fix. If it's mission critical, we die.

MARTINEZ
Sign me up.

LEWIS
Easy, cowboy. You and I are military. There's a good chance we'd be court-martialed when we got home. As for the rest of you, I guarantee they'll never send you up again.

BECK
If we go for it... how would it work?

VOGEL
(shrugs)
I plot the course and execute it.

JOHANSSEN
Remote Override. They can take over the *Hermes* from Mission Control.

LEWIS
Can you disable it?

JOHANSSEN
Hermes has four redundant flight computers, each connected to three redundant comm systems. We can't shut down the comms; we'd lose telemetry and guidance. We can't shut down the computers; we need to control the ship. I'd have to disable the Remote Override on each system... It's part of the OS, I'd have to jump over the code...

(CONTINUED)

CONTINUED: (2)

BECK
Johanssen used to go by the hacker handle "Lady Sorrow" in high school. Just so we're all on the same page.

JOHANSSEN
Beck is a liar. And he should keep our conversations private.
(then)
But, yeah. I can do it.

LEWIS
It has to be unanimous. If anyone says no, that's it. We go home as planned. But I vote yes.

MARTINEZ
I vote yes.

VOGEL
If we do this, it would be over nine hundred days of space. That is enough space for one life.
(then)
Yes.

Beck thinks about it long and hard. Then:

BECK
Let's go get him.

And then there was one. All eyes turn to Johanssen.

LEWIS
Johanssen?

As Johanssen glances up at us, feeling the full weight of the world on her small shoulders --

INT. NASA - MISSION CONTROL - NIGHT

BRENDAN HATCH oversees Mission Control from 1 a.m. to 9 a.m. The shift is much quieter than the day shift. Usually.

CAPCOM
Flight, CAPCOM.

BRENDAN
Go CAPCOM.

CAPCOM
Unscheduled status update from *Hermes*.

CONTINUED:

BRENDAN
Roger. Read it out.

CAPCOM
I...I don't get it, Flight. No real status. Just a single sentence.

BRENDAN
What's it say?

CAPCOM
Message reads: "Houston, be advised: Rich Purnell is a steely-eyed missile man."

BRENDAN
What? Who the hell is Rich Purnell?

ALARMS start ringing out on the various stations.

GUIDANCE
Flight, Guidance.

BRENDAN
Go Guidance.

GUIDANCE
Hermes is off-course.

BRENDAN
CAPCOM, advise Hermes they're drifting. Guidance, get a correction ready --

GUIDANCE
Negative, Flight. It's not drift, they've adjusted course. Deliberate 27.812 rotation.

BRENDAN
What the hell? CAPCOM, ask them what the hell.

CAPCOM
Roger Flight. Message sent. Minimum reply time 3 minutes, 4 seconds.

BRENDAN
Telemetry, any chance this is instrumentation failure?

TELEMETRY
Negative, Flight.

BRENDAN
Oh god. Guidance, Flight.

CONTINUED: (2)

GUIDANCE
Go Flight.

BRENDAN
Work out how long they can stay on this course before it's irreversible.

GUIDANCE
Working on that now, Flight.

BRENDAN
And somebody find out who the hell Rich Purnell is!

INT. NASA - TEDDY'S OFFICE - DAWN

Teddy's staring out the window when Mitch enters. Teddy makes him wait.

TEDDY
Annie will go before the media this morning and inform them of NASA's decision to reroute the Hermes to Mars.

MITCH
That seems like the smart move. Considering the circumstances.

TEDDY
You may have killed the whole crew.

MITCH
Whoever gave them the maneuver only passed along information. The crew made the decision on their own.

Teddy looks at him. *Don't give me that horseshit.*

TEDDY
We're fighting the same war. Every time something goes wrong, the world forgets why we fly. I'm trying to keep us airborne. This is bigger than one person.

MITCH
No. It's not.

Teddy relents. Just slightly. *God, I hope you're right.* Then:

TEDDY
When this is over... I'll expect your resignation.

(CONTINUED)

CONTINUED:

MITCH
(a beat; then)
I understand.

TEDDY
(we're finished here)
Bring our astronauts home.

EXT. MARS

Beneath us, sunlight creeps across the ridges of the Schiaparelli Crater. We PRELAP the sound of DRILLING.

TITLE: Sol 219

MARK (PRELAP)
Every Ares mission requires three years of presupplies...

INT. HAB - DAY

Mark talks directly to the camera.

MARK (CONT'D)
...so NASA figured out it's a lot easier to ship some of this stuff ahead of time rather than bring it with us. So, as a result, the MAV for Ares-4 is already waiting at the Schiaparelli Crater. And the plan is to use it to launch me into orbit just as the Hermes is passing. And then, I guess... they catch me? In space.

Mark thinks about that. Grins. *Okay, I guess that sounds awesome.*

MARK (CONT'D)
Anyway, that's not really my problem right now. First, I have to get there. And it's 3,200 kilometers away. So I have 200 sols to figure out how to bring everything here that's keeping me alive -- the Atmospheric Regulator, the Oxygenator, and the Water Reclaimer -- along for the ride. Luckily, I have the brainpower of the entire planet Earth helping me with this endeavor. So far we've come up with, "Drill holes in the roof of your rover and then hit it with a rock."
(then)
We'll get there.

CONTINUED:

MUSIC UP: The opening CHORDS of "Starman" by David Bowie take us to...

EXT. HAB - DAY

Mark, in his MAV SUIT, stands on top of Rover Two. He holds the large ROCK SAMPLE DRILL like a jackhammer, drilling holes through the roof. It's grueling work.

He's been at this a while: we catch a glimpse of the SEVEN-HUNDRED HOLES he's drilled around the edge of the roof.

He finishes the last hole. Then he grabs a SCREWDRIVER. And a ROCK. Jams the screwdriver between the holes like a chisel. WHACK! He hits it with the rock.

WHACK! He hits it again. And again.

EXT. MARS - DAY - BEGIN MONTAGE

"Didn't know what time it was the lights were low, oh, oh..."

Mark positions the partially-disassembled rover in front of the camera. Frames his handiwork. Waits.

INT. NASA ROVER ROOM - DAY - MONTAGE

"I leaned back on my radio, oh, oh..."

Vincent and his engineers study Mark's photograph. Okay, good. The engineers start sketching out what to do next...

EXT. CNSA - DAY - MONTAGE

"Didn't know what time it was the lights were low, oh, oh..."

A bleary Teddy and Mitch step into the lobby of the China National Space Administration. They find Zhu and Guo waiting for them with an entourage. As they shake hands...

INT. HAB - KITCHEN - DAY - MONTAGE

"There's a starman waiting in the sky..."

Mark, inventories his remaining ration packs while he eats a potato.

He labels a few ration packs as he sets them aside: **"Departure," "Birthday," "Last Meal..."**

EXT. HERMES - SPACE - MONTAGE

The Hermes approaches Earth, slowing rotation...

INT. HERMES - VIDEO BOOTH - REC ROOM - SPACE - MONTAGE

Martinez talks to his wife, MARISSA, on a screen in the video booth. She's upset with him.

MARISSA
Five hundred and thirty-three days longer? And you said yes to this?

MARTINEZ
I did. He would have done the same for me. You know that.

MARISSA
And you think I'm gonna forgive you?

MARTINEZ
I do.

Goddamn it, he's right. After a moment, she holds her hand up to the screen. He does the same.

INT. JPL - WHITE ROOM - DAY - MONTAGE

Bruce and his team oversee the Iris 2 Probe as it's loaded into shipping containers.

A few Chinese members of the CNSA (dressed in protective gear) watch as well.

INT. HERMES - VIDEO BOOTH - REC ROOM - SPACE - MONTAGE

Lewis, floating now due to the lack of centripetal gravity, talks on the computer to her husband, ROBERT. It's clear they love each other.

ROBERT (ONSCREEN)
I found it at the flea market. Original. Pressing.

Robert holds up a vintage 1973 copy *Abba's Greatest Hits* album.

Lewis squeals when she sees it. Claps with delight.

EXT. LAUNCH PAD - CHINA - DAY - MONTAGE

The Iris 2 Probe is attached to the booster.

INT. CNSA - DAY - MONTAGE

Mitch engages in a heated argument with the Chinese Flight Director.

(CONTINUED)

CONTINUED:

MITCH
All due respect to your CNSA protocol, we haven't done things that way since Apollo 9 --

The translator tries to translate his words. Zhu raises his eyebrows, glances at Teddy -- *is this guy for real?*

Teddy shakes his head, *Don't look at me, man.*

EXT. HAB - DAY - MONTAGE

Mark seals the tent to the roof of Rover 2, then pressurizes it. Checking for leaks. It's like a hot-air balloon.

INT. NASA - WORK ROOM - MONTAGE

Vincent and his engineers are doing the exact same thing -- they have a mirrored set of Mark's equipment. They try to figure out how to fit the Oxygenator into the pop tent.

INT. HERMES FLIGHT DECK - SPACE - MONTAGE

Vogel entertains his WIFE and their young CHILDREN. He flips from a low-G area into a non-G area. ON THE SCREEN: The kids laugh and laugh.

INT. CNSA - DAY - MONTAGE

The Taiyang Shen LAUNCHES. Mitch, Teddy, and the Chinese scientists all clap, shake hands.

EXT. MARS - DAY - MONTAGE

"He told us not to blow it 'Cause he knows it's all worthwhile..."

Mark, bops his head to the music as he drives Rover 2 across the dunes.

EXT. IRIS 2 PROBE - DAY (STOCK)

The Iris 2 probe separates from its booster rocket.

INT. HERMES FLIGHT DECK - MONTAGE

Martinez takes control of the probe. He pilots it towards the Hermes...

EXT. HERMES - SPACE - MONTAGE

The probe approaches the Hermes as the docking procedure begins...

INT. HERMES - AIRLOCK 3 - SPACE - MONTAGE

Beck, geared up in his EVA suit, tethered to the wall, guides the probe to the docking port.

INT./EXT HERMES - REC ROOM - SPACE - MONTAGE

Johannsen watches anxiously through the window port as Beck secures the docking.

INT. HERMES - AIRLOCK 3 - SPACE - MONTAGE

Beck, geared up in his EVA suit, tethered to the wall, guides the probe to the docking port.

EXT. HERMES - SPACE - END MONTAGE

"Let the children lose it, let the children use it, let all the children boogie..."

The Hermes, rotating once again, soars through space on its return journey to Mars. It leaves the Earth behind...

And the music slowly FADES OUT.

EXT. MARS

As we hold in silence on the Red Planet, the title takes a little longer than usual to appear onscreen....

TITLE: **Sol 461**

MARK (PRELAP)
I've been thinking about laws on Mars...

EXT. HAB - DAY

And it's OVER SIX MONTHS LATER, so a lot has changed.

MARK (PRELAP)
There's an international treaty saying no country can lay claim to anything that's not on Earth.

Both Rovers are now hitched together. Pathfinder rides on top of Rover 1 like Granny Clampett. Rover 2 houses all the equipment. The whole thing looks like a Gypsy caravan made of billion dollar NASA equipment.

MARK (PRELAP) (CONT'D)
And by another treaty, if you're not in any country's territory, maritime law applies. So Mars is "international waters."

INT. HAB - DAY

The Hab is similarly transformed. All the major equipment has been stripped for parts. Sections of the canvas have been cut down, re-glued, making the tent lopsided in places.

MARK (PRELAP)
NASA is an American non-military organization, and it owns the Hab. So, as soon as I step outside, I'm in international waters.

INT. HAB - DAY

Mark talks directly to camera. The six months have transformed him as well. He's GAUNT. His hair is longer. His impressive beard shapes his face.

MARK
Here's the cool part. I leave this morning for the Schiaparelli crater, where I will commandeer the Ares 4 lander. Nobody explicitly gave me permission to do this, and they can't until I'm aboard the Ares 4. So I will take control of a craft in international waters without permission. Which, by definition, makes me a pirate.
(then)
Mark Watney, Space Pirate.

It's better than winning the Nobel Prize.

INT. HAB - DAY

Last day in the Hab. Mark shaves his beard. CUT TO:

Mark organizes the boxes and boxes of experiments he was keeping alive during his time in the Hab. Among the labels we see **"Das Soil Samples."** CUT TO:

Mark pulls on his suit. Performs final shutdown. All the computers, lights, heaters go DARK. Silence.

EXT. HAB - DAY

Mark depressurizes the Hab. Stares at it for a moment. Thank you for keeping me alive.

EXT. ROVER - DAY

Mark opens Rover 2. We catch a glimpse inside: it's filled with frozen potatoes and scavenged equipment.

CONTINUED:

Mark tosses the box of remaining rations inside. We catch a glimpse of one of the labels: **"Goodbye, Mars."**

INT. ROVER - DAY

Mark climbs into Rover 1. Powers up the system. *Here we go.*

EXT. ROVER - DAY

Mark rolls out of the Hab site. Heading towards the horizon.

EXT. MARS - VARIOUS - DAY

MARK (V.O.)
Everywhere I go, I'm the first. It's a strange feeling.

Mark leaves FOOTPRINTS in the red dirt as he walks.

MARK (V.O.)
Step outside the rover? First guy to be there. Climb that hill? First guy to do that.

Mark takes careful note of one of the Martian moons (PHOBOS) in the sky. Finds his course.

MARK (V.O.)
Four and a half billion years... nobody here. And now... me.
(then)
I'm the first person to be alone on an entire planet.

EXT. MARS - DAY

Mark sits outside the rover in his MAV suit while he waits for the solar panels to charge.

He takes in the view. Phobos arcs through the sky.

It's beautiful.

INT. NASA - MISSION CONTROL - DAY

SATELLITE VIEW: Mark's caravan makes its way around the impressive Marth Crater.

Mindy watches at her station. Vincent approaches.

VINCENT
How's our boy doing?

CONTINUED:

MINDY
So far, so good. He's sticking to schedule. Drives for four hours before noon. Then sets the solar panels. And waits thirteen hours while they recharge. Sleeps somewhere in there. Then starts again.

VINCENT
How's his morale?

MINDY
He's asked us to call him "Captain Blondebeard."

VINCENT
(thinks about that... huh)
Mars would be governed by maritime law, so technically --

MINDY
Yeah, he explained it to us.

EXT. MARS - DAY

The ROVER cuts across Mars. No music. Just quiet. Wheels turning in the rust-colored dirt.

TITLE: Sol 494

The Rover has a max speed of 25 kph, so it's slow going. But hypnotic. Right now, it's the only thing moving on the entire planet.

EXT. MARS - DAY

ANGLE MARK. Watching the horizon.

INT. NASA - VINCENT'S OFFICE - DAY

A stack of paperwork drops in front of Vincent. We notice diagrams for the MAV.

BRUCE
Okay, we're gonna start by stating, for the record, that you're not gonna like this.

Vincent starts to look through the plans.

CONTINUED:

MITCH
The problem is the intercept velocity. The Hermes cannot enter Mars orbit, or they'll never have enough fuel to make it home. The MAV is only designed to get to Low Mars Orbit. So in order for Mark to escape Mars' gravity entirely and intercept the Hermes...

VINCENT
He needs to be going fast.

BRUCE
(nods)
Which means we need to make the MAV lighter. A lot lighter. Five-thousand kilograms lighter.

VINCENT
You can do that?

Bruce gives him a look that says, *well, that depends on your definition of "do that," Vincent.* He begins to deconstruct a scale model of the MAV:

BRUCE
There were some gimmes right off the bat. The design presumes 500 kilograms of Martian soil and samples. Obviously, we won't do that.

MITCH
There's just one passenger instead of six. With suits and gear, that saves another 500. Then we ditch the life support. We don't need it. We'll have Watney use his EVA suit for the whole trip.

VINCENT
How will he use the controls?

MITCH
He won't. Martinez will pilot the MAV remotely from the Hermes.

VINCENT
We've never had a manned ship controlled remotely before.
(off Mitch's look)
But... I'm excited for the opportunities that affords.

CONTINUED: (2)

BRUCE
If we go remote, we can lose the control panels. Then we dump the secondary and tertiary comm systems.

VINCENT
You're going to have a remote controlled ascent with no backup comms?

MITCH
He's not even to the bad stuff yet, Vincent.

Really?

VINCENT
You better skip to the bad stuff.

BRUCE
We have to remove the nose airlock, the windows, and Hull Panel 19.

VINCENT
(*what*?)
You're taking the front of the ship off?

BRUCE
Sure. The nose airlock alone is 400 kilograms.

VINCENT
You're going to launch a man into space with a giant hole in the front of the ship?

BRUCE
Well... no. We're gonna have him cover it with Hab canvas.

Vincent puts his head in his hands.

BRUCE (CONT'D)
The hull's mostly there to keep the air in. Mars' atmosphere is so thin you don't need a lot of streamlining. By the time the ship's going fast enough for air resistance to matter, it'll be high enough that there's practically no air.

VINCENT
You're sending him to space under a tarp.

BRUCE
Yes. Can I go on?

(CONTINUED)

CONTINUED: (3)

VINCENT
(thinks genuinely)
I'm not really sure I want you to, but okay.

INT. NASA - MISSION CONTROL - DAY

Mindy reads Mark's response while the group awaits. Mitch looks on from his station.

MINDY
Mark says... "Are you f-word-ing kidding me?"

VINCENT
Do you think he meant it like...
(excited)
"Are you kidding me?" Or more...
(angry)
"Are you kidding me?"

MINDY
(doesn't want to hurt Vincent's feelings)
It's... possible he meant it the first way?

INT. ROVER - ARES 4 MAV SITE - DAY

TITLE: Sol 538

Mark stares at the camera with a look that says, "*Oh jesus these JPL guys are gonna get me killed.*"

MARK
(distraught)
I know what they're doing. I know what they're doing. They keep repeating "accelerate faster than any man in the history of space travel" like this is a good thing, like this'll distract me from how insane their plan is. Oh really? I get to be the fastest man in the history of space travel? You're launching me into space in a convertible. No no, it's worse, because I don't have any controls. You're launching me into space in a tin can. And, by the way, physicists don't even use words like "fast" when describing acceleration, so they're only doing it in hopes I won't raise any objections because I like the way "fastest man in the history of space travel" sounds. Well, you know what?
(MORE)

(CONTINUED)

CONTINUED:

MARK (CONT'D)
(thinks about it)
I do like it. I do like the way it sounds.
(then)
Okay, fine. Let's do this.

MUSIC UP: "Waterloo" by ABBA begins to play...

EXT. MAV - DAY

Mark stands at the base of the MAV. He holds a large wrench in his hand, almost like a weapon.

As Mark stares up at the MAV with a gleam in his eyes...

"My my at Waterloo Napoleon did surrender..."

INT. MAV - DAY

Mark tears the acceleration chairs out of the cockpit.

EXT. MAV - DAY

WHUMP. One after another, the acceleration chairs hit the dirt in a pile. WHUMP.

INT. MAV - DAY

Mark tears out the control panels. He's having fun.

EXT. MAV - DAY

WHUMP. The controls hit the dirt. The pile is growing.

MUSIC UP: "Waterloo" by ABBA begins to play...

INT. HERMES FLIGHT DECK - SPACE

Martinez runs through a flight simulation at his station. It's not going well. "Collision with Terrain" blinks in angry red letters on his screen.

JOHANSSEN
And... you killed him.

Lewis shrugs. The taskmaster.

LEWIS
Try it again.

Martinez reboots the simulator...

INT. MAV COCKPIT - DAY

Mark waits in the airlock with a mess of stripped equipment.

EXT. MAV - DAY

The outside of the MAV now looks like the set of Sanford and Son. Mark wrenches one of the MAV's hull panels free.

EXT. MAV - DAY

UP ABOVE: The nose airlock breaks free, and tumbles down towards camera, BLACKING OUT FRAME.

EXT. MAV - DUSK

FROM BLACK, we FIND MARK. He's sitting on a hill slope, surveying his handiwork.

The MAV has been TRANSFORMED. The whole front has been torn off. Hab canvas now covers it. Equipment litters the area all around us. Junkyard on Mars.

"Finally facing my Waterloo..."

Mark just sits. Exhausted.

The music FADES.

EXT. HERMES - SPACE

The Hermes halts rotation as it approaches Mars.

TITLE: Sol 560

LEWIS(PRELAP)
Here's the plan...

INT. HERMES REC ROOM - SPACE

The whole crew is present for the state of the union.

LEWIS
Martinez will fly the MAV. Johanssen will sysop the ascent. Beck and Vogel, I want you in Airlock 2 with the outer door open before the MAV even launches. Once we reach intercept, it'll be Beck's job to get Watney.

CONTINUED:

BECK
He might be in bad shape. The stripped down MAV will get up to 12 g's during the launch. He could be knocked unconscious and may have internal bleeding.

LEWIS
Well, then it's a good thing you're our doctor. What's the intercept plan?

BECK
We finished attaching the tethers into one long line. It's 214 meters long. I'll have the MMU, so moving around should be easy.

LEWIS
How fast a relative velocity can you handle?

BECK
Once I get to Mark? I can grab the MAV at 5 meters per second. 10 is like jumping onto a moving train. Any more than that and I might miss.

LEWIS
We've got some leeway. The launch will be 52 minutes before the intercept and it takes 12 minutes. As soon as Mark's engine cuts out we'll know our intercept point and velocity.

BECK
Good. And 214 meters isn't a hard limit, per se.

LEWIS
Yes. It is.

BECK
I take off the tether, I could get way out to --

LEWIS
Not an option. Vogel, you're Beck's backup. All goes well, you're pulling them back aboard with the tether. If things go wrong, you're going out after them.

VOGEL
Ja.

CONTINUED: (2)

LEWIS
All right. Let's go get our boy.

INT. POP UP TENT - DAY

Mark sits inside the makeshift pressurized tent. He tears open his last remaining ration pack:

"Goodbye, Mars"

He eats in silence.

TITLE: Sol 561

EXT. NASA - NIGHT

It's a mob scene at NASA. Networks from all across the globe have sent teams to cover the event. Campers, crews, and chaos all around as everyone fights for real estate in the biggest story of the century.

EXT. TIMES SQUARE - NIGHT

New-Years-Eve-Level crowds gather in Times Square. On the Jumbotron, news reports announce the **"Watney Rescue."**

INT. MISSION CONTROL - NIGHT

Teddy, Vincent, and Annie watch from an observation area.

ANNIE
If something goes wrong, what can Mission Control do?

VINCENT
Not a damned thing.
(off her look)
It's all happening twelve light-minutes away. That means it takes twenty-four minutes for them to get the answer to any question they ask. The whole launch is twelve minutes long. They're on their own.

ANNIE
Not that we have a choice, but... are we *sure* we want to be broadcasting this to the world? I mean, if something goes wrong --

VINCENT
(cutting her off)
Yes.
(MORE)

(CONTINUED)

CONTINUED:

VINCENT (CONT'D)
(resolute)
We want to be broadcasting this.

Mitch takes his position as Johanssen's VOICE rings out:

JOHANSSEN (OVER COMMS)
Fuel Pressure green.

EXT. STREETS - BEIJING - DAY

Crowds watch the screens in Beijing as Johanssen's voice RINGS OUT:

JOHANSSEN (OVER COMMS)
Engine alignment perfect...

EXT. ST. PETERSBERG - DAY

The cold is not keeping the crowds from watching the screens in the Palace Square.

JOHANSSEN (OVER COMMS)
Communications five by five...

INT. HERMES - FLIGHT DECK - SPACE

Lewis nods. She's been waiting for this moment for some time. Keys the console --

LEWIS
About two minutes, Watney. How you doing down there?

INT. MAV - COCKPIT - DAY

Mark tries to keep his emotions under control as he waits in the cockpit...

MARK
It's good to hear your voice, Commander. I'm eager to get up to you.

He fails. His voice breaks.

MARK (CONT'D)
Thank you for coming back for me.

INT. HERMES FLIGHT DECK - SPACE

LEWIS
We're on the case. Remember, you'll be pulling some pretty heavy G's. It's okay to pass out. You're in Martinez' hands.

(CONTINUED)

CONTINUED:

MARK
Tell that asshole no barrel-rolls.

LEWIS
Copy that, MAV. CAPCOM...

CLOSE ON JOHANSSEN, at her station.

JOHANSSEN
Go.

LEWIS
Remote Command...

CLOSE ON MARTINEZ, grinning in anticipation.

MARTINEZ
Go.

LEWIS
Recovery...

INT. HERMES - AIRLOCK 2 - SPACE

CLOSE ON BECK as he floats in the open airlock. Beneath him, the Red Planet blazes in all its brilliance.

BECK
Go.

LEWIS (OVER COMMS)
Secondary recovery...

CLOSE ON VOGEL, clamped to the floor behind Beck.

VOGEL
Go.

INT. HERMES - FLIGHT DECK - SPACE

CLOSE ON LEWIS:

LEWIS
Pilot...

And finally...

INT. MAV - COCKPIT - DAY

CLOSE ON MARK WATNEY, in his EVA suit, strapped into his acceleration seat.

MARK
Go.

EXT. VARIOUS - DAY/NIGHT

ALL AROUND THE WORLD -- the CROWDS ERUPT IN CHEERS as they hear Mark's voice.

INT. NASA - MISSION CONTROL - NIGHT

LEWIS (OVER COMMS)
Mission control, this is Hermes actual. We are go for launch, and will proceed on schedule. 10 seconds to launch... mark.

INT. HERMES - FLIGHT DECK - SPACE

MARTINEZ
Main engines start.

JOHANSSEN
8... 7... mooring clamps released...

LEWIS
About five seconds, Watney. Hang on.

INT. MAV - DAY

Mark tenses in anticipation.

MARK
See you in a few, Commander.

JOHANSSEN (OVER COMMS)
4... 3... 2... 1...

LIFTOFF.

Mark is SLAMMED back into his acceleration couch --

EXT. LAUNCHSITE - DAY

SFX: the MAV launches upward with incredible force. And yes, as discussed, *in the history of space travel,* no manned ship has ever accelerated with more force.

INT. MAV - DAY

Mark can't even GASP -- the wind knocked out of him -- He struggles to remain conscious as the ship shakes VIOLENTLY --

MARK'S POV: staring forward, at the HAB CANVAS (which now patches where the nosecone used to be.)

As the ship accelerates, the canvas begins to RIP --

INT. HERMES - FLIGHT DECK - SPACE

JOHANSSEN
Velocity 741 meters per second. Altitude 1350 meters...

LEWIS
That's too low --

MARTINEZ
I know. It's fighting me --

JOHANSSEN
Velocity 850, altitude 1843 --

LEWIS
Watney? Watney, do you read? Can you report?

INT. MAV - DAY

But Mark's barely conscious -- his eyes drifting from terrified to serene as he fades --

HIS POV -- the canvas RIPS FREE....

Revealing the RED ATMOSPHERE of Mars. And as it thins -- as we rocket towards the heavens -- the red gives way to the black...

And the last thing Mark sees before he drops unconscious --

Are the STARS.

INT. HERMES - FLIGHT DECK - SPACE

JOHANSSEN
He's well below target altitude.

LEWIS
How far below?

JOHANSSEN
Working on it -- Main shutdown in 3... 2... 1... Shutdown.

MARTINEZ
Back to automatic guidance. Confirm shutdown.

LEWIS
Watney? Do you read?

CONTINUED:

BECK (OVER COMMS)
He's probably passed out. He pulled 12 G's on the ascent. Give him a few minutes.

LEWIS
Copy.

JOHANSSEN
I have interval pings. Intercept velocity will be 11 meters per second...

BECK (OVER COMMS)
I can make that work.

JOHANSSEN
Distance at intercept will be --
(goes pale)
We'll be 68 kilometers apart.

INT. HERMES - AIRLOCK 2 - SPACE

BECK
Did she say 68 kilometers? *Kilometers*?

INT. HERMES - FLIGHT DECK - SPACE

MARTINEZ
Oh my god...

LEWIS
Keep it together. Work the problem. Martinez, do we have any juice in the MAV?

MARTINEZ
Negative, Commander. They ditched the OMS system to make launch weight.

LEWIS
Then we have to go him. Johanssen, time to intercept?

JOHANSSEN
39 minutes, 12 seconds --

LEWIS
What if we point our attitude thrusters all the same direction?

MARTINEZ
Depends on how much fuel we want to save for attitude adjustments on the trip home.

(CONTINUED)

CONTINUED:

LEWIS
How much do you need?

MARTINEZ
I could get by with maybe 20 percent of what's left.

LEWIS
Johanssen --

JOHANSSEN
(already working it)
Use 75.5 percent of remaining attitude adjust fuel. That'll bring the intercept range to zero.

LEWIS
Do it.

JOHANSSEN
Hang on -- that gets the range to zero, but the intercept velocity will be 42 meters *per second* --

LEWIS
Then we have 39 minutes to figure out how to slow down. Martinez, burn the jets.

EXT. HERMES - SPACE

WHOOSH. The attitude thrusters FIRE. The Hermes changes course --

INT. MAV - DAY

CLOSE ON MARK as his eyelids flutter. He winces in pain as he slowly regains consciousness.

BENEATH HIM -- the orbiting MAV offers an unobstructed view of Mars. The great red planet's horizon stretches out forever as the wispy atmosphere gives it a fuzzy edge.

It's breathtaking. Awe-inspiring.

Mark holds up his middle finger. *Fuck you, Mars.*

MARK
MAV to Hermes --

LEWIS (OVER COMMS)
Watney?!

MARK
Affirmative, Commander.

CONTINUED:

LEWIS (OVER COMMS)
What's your status?

MARK
My chest hurts. I think I broke some ribs.
(then)
How are you?

LEWIS (OVER COMMS)
We're working on getting you. There was a complication during launch.

MARK
Yeah. The canvas didn't hold...

INT. HERMES - FLIGHT DECK - SPACE

MARK (OVER COMMS)
I think it ripped early in the ascent.

LEWIS
That's consistent with what we saw.

MARK (OVER COMMS)
How bad is it, Commander?

LEWIS
We've corrected the intercept range, but we've got a problem with the intercept velocity.

MARK (OVER COMMS)
How big a problem?

LEWIS
42 meters per second.

INT. MAV - DAY

We're CLOSE ON MARK as that news lands.

MARK
Well. Shit.

INT. HERMES - FLIGHT DECK - SPACE

Everyone struggles to find a solution. Mark's voice interrupts the silence:

MARK (OVER COMMS)
Commander?

INT. MAV - DAY

LEWIS (OVER COMMS)
Go ahead, Mark.

MARK
I could find something sharp in here and poke a hole in the glove of my EVA suit. I could use the escaping air as a thruster and fly my way to you. Since the source is on my arm, I could direct it pretty easy.

INT. HERMES - FLIGHT DECK - SPACE

LEWIS
I can't see you having any control if you did that. You'd be eyeballing the intercept and using a thrust vector you can barely control.

MARK (OVER COMMS)
Those are very good points. But. Consider this:

INT. MAV - DAY

MARK
I would get to fly around like Iron Man.

INT. HERMES - FLIGHT DECK - SPACE

LEWIS
We should have left him on Mars.

MARK (OVER COMMS)
Iron Man, Commander. *Iron Man.*

Lewis rubs her face. Thinks. Hmm...

LEWIS
Maybe it's not the worst idea.

MARTINEZ
No, it actually is. The worst idea. Ever.

LEWIS
Not his part. But using atmosphere as thrust...
(springs into action)
Martinez, get Vogel's station up and running...

CONTINUED:

MARTINEZ
It's up. What do you need?

LEWIS
I need to know what happens if we blow the VAL.

Both Martinez and Johanssen straighten up. What?

MARTINEZ
You want to open the Vehicular Airlock?

LEWIS
It would give us a good kick.

MARTINEZ
Yeah. And it might blow the nose of the ship off in the process.

JOHANSSEN
And... all the air would leave. And we need air. To not die.

LEWIS
We'll seal the bridge and reactor room. We let everywhere else go vacuo.

MARTINEZ
But we'd still have the same problem as Watney. We can't direct the thrust.

LEWIS
We don't have to. The VAL is in the nose. We just point the ship at Mark.

MARTINEZ (reading the numbers)
A breach at the VAL would decelerate us 29 meters per second.

JOHANSSEN
Which gives us a relative velocity of 13 meters per second.

LEWIS
Beck -- you hearing this?

INT. HERMES - FLIGHT DECK - SPACE

MARTINEZ
How do we open the airlock doors? There's no way to open them remotely, and if anyone's nearby when it blows...

(CONTINUED)

CONTINUED:

LEWIS
Right... right...
(thinks)
Vogel?

VOGEL (OVER COMMS)
Go ahead, Commander.

LEWIS
Take your suit off.
(then)
I need you to come back in and make a bomb.

INT. MAV - DAY

MARK
Did you say "bomb?" You guys are making a bomb without me?

INT. HERMES - AIRLOCK 2 - SPACE

VOGEL
Um... Again, please, Commander.

LEWIS (OVER COMMS)
You're the chemist. Can you make a bomb with what we've got on board?

VOGEL
Probably. But... I feel obliged to mention that setting off an explosive device on a spacecraft is a terrible, terrible idea.

LEWIS (OVER COMMS)
Copy that. Can you do it?

VOGEL
(thinks; then)
Ja.

INT. MISSION CONTROL - NIGHT

Lewis' voice rings out through the room:

LEWIS (OVER COMMS)
Houston, be advised: we are going to deliberately breach the VAL to produce thrust.

CHAOS erupts at Mission Control. *WHAT DID SHE JUST SAY?*

INT. HERMES - FLIGHT DECK - SPACE

LEWIS
Beck -- leave your suit on. Meet Johanssen at Airlock 1. We'll open the outer door. I need you to place the charge on the inner door...

INT. HERMES - AIRLOCK 2 - SPACE

LEWIS (OVER COMMS)
...and climb back to Airlock 2 along the hull.

BECK
Copy. On my way.

INT. HERMES/MAV - SPACE - INTERCUT

Mark RIPS free a jagged edge of metal scrap from what used to be the console.

MARK
Commander, I can't let you guys do this. I'm ready to puncture the suit. Let's go with the Iron Man plan.

LEWIS
Absolutely not.

MARK
The thing is, I'm selfish. And I want the memorials back home to be just me. I don't want the rest of you losers in them.
(earnest)
Commander... call it off.

LEWIS
Oh. Okay. Well, if you want us to call it off, then I guess we have to oh wait... wait a minute. Yep. I'm looking at my shoulder patch and it turns out I'm Commander. So shut up.

MARK
(mutters)
Smart ass.

INT. HERMES REC ROOM - SPACE

Vogel works fast. He pours SUGAR into a strong glass beaker. Drills a hole in the stopper as Johanssen enters --

CONTINUED:

JOHANSSEN
Bomb?

VOGEL
(nods)
Bomb. In a pure oxygen environment, 16.7 million Joules will be released for every kilogram of sugar used. Eight times more powerful than a stick of dynamite.

He pours LIQUID OXYGEN into the beaker.

JOHANSSEN
How do we activate it?

Vogel strips electrical wires, threads them into the stopper.

VOGEL
Can you run this to one of our lighting panels?

Johanssen grins.

INT. HERMES - VAL (AIRLOCK 1) - SPACE

Beck (in his spacesuit) enters the Vehicular Airlock as Johanssen is ripping wires out of the lighting panel and threading them into the bomb.

JOHANSSEN
Make sure you're not still here when this goes off.

He takes the bomb from her.

JOHANSSEN (CONT'D)
Wait --

They share a look.

JOHANSSEN (CONT'D)
Be careful. Out in space.

Johanssen kisses his face plate.

JOHANSSEN (CONT'D)
Don't tell anyone I did that.

Beck smiles. Closes the (inner) Airlock door behind her.

INT/EXT. HERMES - VAL (AIRLOCK 1) - SPACE

As the OUTER DOOR opens, revealing SPACE, Beck finishes securing the improvised bomb to the inner door.

BECK
Bomb is set. On my way.

INT. HERMES - FLIGHT DECK - SPACE

As Johanssen races back to her post, Martinez works quickly at his station.

MARTINEZ
Guys, I'm running the numbers -- even with optimal VAL blow, we're gonna be off on our angle.

LEWIS
What's the new intercept distance?
(impatient)
Johanssen.

JOHANSSEN
260 meters. Approximate.

LEWIS
That's too far...

She thinks for a moment. Then she races off the flight deck.

MARTINEZ
Commander?

EXT. HERMES - SPACE

Beck climbs out of Airlock 1, and makes his way along the hull of Hermes, using the handholds. We FOLLOW HIM as he traverses the ship, and as he makes his way into Airlock 2...

INT. HERMES - AIRLOCK 2 - SPACE

...he finds LEWIS, fully suited up, waiting for him.

LEWIS
The intercept distance is gonna be too far. I'm going untethered.

BECK
Commander, I can do this --

LEWIS
It's not a debate, Beck. I'm not risking another crew member.

(CONTINUED)

CONTINUED:

Beck sees there's no arguing with her.

LEWIS (CONT'D)
Johanssen, time to VAL blow?

JOHANSSEN (OVER COMMS)
15 seconds...

LEWIS
We sure know how to cut it close.

INT. HERMES - FLIGHT DECK - SPACE

Vogel rushes into the flight deck.

JOHANSSEN
10 seconds...

MARTINEZ
Strap in.

They tighten the restraints on their chairs.

JOHANSSEN
5... 4... 3...

LEWIS
Brace for deceleration.

JOHANSSEN
2... 1... Activating Panel 41.

She presses ENTER.

INT. HERMES - VAL (AIRLOCK 1) - SPACE

We're CLOSE ON THE BOMB as the current hits it...

KA-BOOOM! The EXPLOSION RIPS THE AIRLOCK DOOR TO SHREDS --

As the Hermes decelerates, Lewis and Beck are SLAMMED up against the wall --

INT. HERMES - FLIGHT DECK - SPACE

Martinez, Vogel, and Johanssen endure the deceleration in their chairs. After four seconds, the ship stabilizes --

JOHANSSEN
Bridge seal holding.

MARTINEZ
Damage?

CONTINUED:

LEWIS (OVER COMMS)
Worry about that later... What's our relative velocity?

INT. HERMES - AIRLOCK 2 - SPACE

JOHANSSEN (OVER COMMS)
12 meters per second.

LEWIS
Copy.

And with that, Commander Lewis places her feet against the back wall for leverage...

AND JUMPS.

INT. HERMES - FLIGHT DECK - SPACE

LEWIS (OVER COMMS)
What's our intercept range?

Johanssen stares at the calculations. *That can't be right...*

JOHANSSEN
312 meters.

INT. MAV - DAY

Mark hears the news. Oh SHIT.

MARK
You said *312*? Great. I'll wave at you guys as I go by.

LEWIS (OVER COMMS)
I have visual on the MAV --

EXT. HERMES - SPACE

Lewis sails clear of the ship, controlling her movements with her MMU. We SPOT the rotating MAV way off in the distance --

LEWIS
Mark -- you're still WAY TOO FAR -- I'm not gonna make it --

INT. MAV - DAY

Mark hears the news. Steels himself.

CONTINUED:

MARK
Commander. Seriously.
(then)
I got this.

Mark unclips his harness. Slams his makeshift knife into his suit. WHOOSH -- the air shoots out through the puncture --

EXT. MAV - DAY

And we're OUTSIDE THE MAV -- as it tumbles away from us --

Mark Watney soars out of the ship.

MARK
(having the time of his life)
I have visual on the Commander.

AHEAD IN THE DISTANCE -- there's Lewis. Mark tries to adjust course as they rocket towards each other.

LEWIS
Johanssen -- what's my relative velocity to Mark?

And as our SCORE begins to BUILD...

INT. HERMES - FLIGHT DECK - SPACE

ANGLE JOHANSSEN -- knuckles white as she types --

JOHANSSEN
5.2 meters per second...

ANGLE MARTINEZ -- on the edge of his seat --

LEWIS (OVER COMMS)
Copy. Adjusting course --

ANGLE VOGEL -- heart in his throat --

JOHANSSEN
3.1 meters per second...

INT. HERMES - AIRLOCK 2 - SPACE

ANGLE BECK -- watching the two figures rocket towards each other below --

JOHANSSEN (OVER COMMS)
Distance to target -- 24 meters --

EXT. HERMES - SPACE

ANGLE LEWIS -- as she counter-thrusts, fires her MMU. Trying to slow as Mark approaches --

JOHANSSEN (OVER COMMS)
11 meters to target...

And finally...

EXT. SPACE

ANGLE MARK. As he cuts through space. Free as the proverbial bird. The Red Planet silhouetted behind him as he leaves it behind, once and for all.

As the score SWELLS to CRESCENDO, these two astronauts soar towards one another, arms outstretched...

JOHANSSEN (OVER COMMS)
6 meters to target...

JUST AS THEY REACH EACH OTHER --

MARK
Contact.

EXT. SPACE - DAY

Mark and Lewis float together, holding tight to one another.

CLOSE ON MARK. As he stares at Lewis. The first human he has seen in ages. He smiles.

MARK
You have terrible taste in music.

INT. NASA - MISSION CONTROL - NIGHT

Everyone leaps up as Lewis' voice rings out through mission control --

LEWIS (OVER COMMS)
I got him.

They ERUPT into CHEERS --

EXT. ST. PETERSBERG - DAY

-- and the CHEERS explode through RUSSIA...

EXT. TIMES SQUARE - NIGHT

...and NEW YORK as news reports break the story of Mark's rescue on the big screens.

EXT. BEIJING - DAY

...and CHINA...

EXT./INT. AIRLOCK - DAY

LEWIS guides MARK towards the airlock with her MMU.

LEWIS (INTO COMMS)
Beck, prep the sick bay. We're bringing him to you. Everyone else, meet me in Airlock Two.

MARTINEZ, JOHANSSEN, and VOGEL race down from the bridge to meet them. They're not in suits -- they have to wait for the outer airlock to close. THROUGH THE OBSERVATION WINDOWS: they see Lewis and Mark touch down in the airlock.

The outer airlock closes -- WHOOSH -- Mark collapses, exhausted. The inner airlock opens. Martinez, Johanssen, and Vogel race into the room, grab Mark. Supporting him. Holding him.

MARK
Hi guys.

Everyone fighting back tears.

JOHANSSEN
Oh, hey Mark. Haven't seen you in a while.

MARTINEZ
Yeah. What've you been up to?

MARK
Oh. You know. Same old, same old.

Click. They help him with his helmet. As they pull it off, everyone is suddenly taken aback. *Oh my god...*

VOGEL
You smell horrible.

MARK
I haven't showered in a year and a half. Cut me some slack.

Johanssen's eyes are watering. *Good lord, he smells bad.*

(CONTINUED)

CONTINUED:

JOHANSSEN
You don't know what you're asking us here.

MARTINEZ
Yeah, captain, we may need to put him back.

MARK
I missed you guys.

They hold each another.

EXT. EARTH - TO ESTABLISH

Home. It's never looked more warm and welcoming.

EXT. PARK - JOHNSON SPACE CENTER - DAY

A man sits by himself on a bench.

ANGLE to reveal it's MARK WATNEY. Basking in the warmth of a beautiful day.

TITLE: DAY 1

INT. NASA - TEACHING THEATER - DAY

The young, fresh-faced recruits in NASA's Astronaut Candidate Program are abuzz as Mark enters the room. The students nudge each other -- *Look, there he is.*

By the time Mark reaches the lectern at the front, he has the full attention of the class.

MARK
Welcome to the Astronaut Candidate Program. Pay attention. This could save your life.
(then)
Trust me, I know what I'm talking about.

The class laughs.

MARK (CONT'D)
Okay, let's see if I can get some of your questions out of the way up front. Yes, I did, indeed, survive on a deserted planet by farming in my own shit. It was even more disgusting than it sounds. Let's never speak of it again.

More laughter. Mark lets it subside.

CONTINUED:

MARK (CONT'D)
Question Two: "When you were stranded and alone up there... did you think you were gonna die?"

And there's a pause as Mark thinks about it. The rare moment of reflection for our hero.

He nods. Genuine:

MARK (CONT'D)
Yes.

Then...

MARK (CONT'D)
And it'll happen to you, too. You should know that going in. It's space. It's filled with chance, circumstance, and bad luck. It doesn't cooperate. At some point, I promise, at some point every single thing is gonna go south on you, and you'll think: this is it. This is how I end.
(then)
And you can either accept that... or you can get to work.

He lets those words land.

MARK (CONT'D)
That's all it is. You simply begin. Solve one problem. Then the next one, then the next.
(then)
You solve enough problems... and you get to come home.

Mark opens his notebook.

MARK (CONT'D)
All right. Questions?

Every hand in the class shoots into the air.

MUSIC UP: "LOVE TRAIN" by The O'Jays carries us to...

EXT. LAUNCHPAD - DAY

A SPACECRAFT is readied for launch.

CONTINUED:

ANNIE (PRELAP)
...as soon as Mission Control finishes their pre-flight checks, we will begin launch procedures...

INT. NASA - PRESS ROOM - DAY

ANNIE MONTROSE stands at her place at the podium. Annie's a little older, a little wiser, but can still command a room.

ANNIE
The Ares 5 team will rendezvous with the Hermes approximately 48 minutes after launch. From there, they've got 414 days of space travel ahead of them, arriving at Mars on March 30th. And I'll let the Director of Mars Missions, Vincent Kapoor, brief you on the particulars.

VINCENT steps to the podium. He's calm. At ease. Much better on television than we've ever seen him.

VINCENT
Good morning. Their mission is scheduled for 41 Sols. Your briefs detail the research and experiment schedules...

And the MUSIC CONTINUES THROUGHOUT as...

INT. NASA - MISSION CONTROL

The room is ABUZZ WITH ACTIVITY as they prepare for launch.

MINDY PARK takes her place at her STATION. She's moved up in the world, now bears the title of:

MINDY
Flight, CAPCOM. Ready to begin preflight check.

BRENDAN HATCH takes his place as the new FLIGHT DIRECTOR.

BRENDAN
Go ahead, CAPCOM.

UP ABOVE: In the VIEWING ROOM... TEDDY SANDERS watches the activity from his solitary seat. He has his GREEN FOLDER at the ready beside him.

EXT. JPL - MORNING

A DEER trots through JPL grounds... it's still early yet at the Jet Propulsion Labs in Pasadena....

CONTINUED:

But BRUCE NG is awake. And he still looks as exhausted and rumpled as ever. But he's in a good mood. He eats breakfast with his team outside as they watch the news reports detailing the **"ARES 5 LAUNCH."**

Bruce and his team laugh, make jokes with each other. One of them tosses food to the deer.

INT. SUBURBAN HOUSE - DAY

"People all over the world, join in..."

Five BEAUTIFUL BLONDE CHILDREN race through the house, wearing NASA t-shirts and jumpsuits -- we get the sense this is the Superbowl for this family.

ALEX VOGEL grabs his youngest daughters as they race past. He scoops them up in his arms. They laugh and laugh.

INT. SPACECRAFT - DAY

The Ares 5 astronauts secure themselves into their acceleration chairs. We settle on one astronaut:

WEN JIANG. *The first Chinese national to go to Mars.*

CAPCOM (OVER COMMS)
Guidance.

WEN
Go.

INT. NASA - MISSION CONTROL

ZHU TAO and GUO MING stand at the back of the room, listening with pride as Wen runs through his check. A historic moment for their country.

EXT. PARK - MORNING

MITCH HENDERSON watches his grandson run around the park. We get the sense (the forced) retirement is treating him well.

INT. HOSPITAL - DAY

"Let this train keep on riding, riding on through..."

CHRIS BECK accepts a bouquet of flowers from a nurse. Sets them down next to the others as he checks on...

His wife. BETH JOHANSSEN. Who's holding THEIR NEWBORN BABY GIRL in her arms.

Beck climbs into the hospital bed next to them.

INT. SPACECRAFT - DAY

As we hear the TIMER CONTROLLER initiate the COUNTDOWN...

TIMER CONTROLLER (OVER COMMS)
10... 9... 8...

We settle on the final member of the ARES 5 team:

RICK MARTINEZ. He grins as he feels that all-too-familiar surge of adrenaline. *Here we go again...*

INT. HOUSE - DAY

We're MOVING DOWN THE HALLWAY of a quaint house. On the WALLS: vintage albums and posters...

Donna Summer's LAST DANCE on 7"... C'est Chic... A framed top that looks like something Gloria Gaynor wore...

TIMER CONTROLLER (OVER COMMS)
7... 6...

And mixed in among the glittery paraphernalia:

The NASA Distinguished Service Medal... The Congressional Medal of Honor...

MELISSA LEWIS is glued to the television. She doesn't look up as her husband brings her a cup of tea.

She's with the crew in this moment. Her husband doesn't take offense. He gives her a loving pat and exits.

TIMER CONTROLLER (OVER COMMS) (CONT'D)
5... 4...

INT. NASA - MISSION CONTROL

"People all over the world, 'round the world y'all, join hands..."

WIDE ON THE WHOLE ROOM as the team stares back at us in eager anticipation.

TIMER CONTROLLER (OVER COMMS)
3... 2... 1...

Launch.

The crowd erupts into cheers. They reach for one another.

We drift up to find...

EXT. SPACE

Earth. Blue and beautiful.

Home.

FADE OUT.

THE END

BEST PICTURE

Produced by
Simon Kinberg, p.g.a. · Ridley Scott, p.g.a.
Michael Schaefer, p.g.a. · Aditya Sood · Mark Huffam, p.g.a.

BEST DIRECTOR

Directed by Ridley Scott

BEST ADAPTED SCREENPLAY

Screenplay by
Drew Goddard Based upon the novel by Andy Weir

BEST ACTOR

Matt Damon

BEST SUPPORTING ACTOR

Jeff Daniels · Michael Peña
Sean Bean · Sebastian Stan
Aksel Hennie · Benedict Wong
Donald Glover · Eddy Ko
Chiwetel Ejiofor

BEST SUPPORTING ACTRESS

Jessica Chastain · Kristen Wiig
Kate Mara · Mackenzie Davis
Chen Shu

BEST CINEMATOGRAPHY

Director of Photography
Dariusz Wolski, ASC

BEST PRODUCTION DESIGN

Production Designer Arthur Max
Set Decorator
Celia Bobak

BEST FILM EDITING

Film Editor
Pietro Scalia, ACE

BEST COSTUME DESIGN

Costume Designer Janty Yates

BEST ORIGINAL SCORE

Music by
Harry Gregson-Williams

BEST SOUND MIXING

Production Sound Mixer
Mac Ruth
Re-Recording Mixers
Paul Massey · Mark Taylor

BEST SOUND EDITING Supervising

Sound Editor/Sound Designer Oliver Tarney

BEST MAKEUP AND HAIRSTYLING

Makeup and Hair Designer
Tina Earnshaw
Key Makeup Artist
Jana Carboni
Chief Hairstylist
Maralyn Sherman

BEST VISUAL EFFECTS Richard

Stammers · Chris Lawrence Anders
Langlands · Steven Warner

OUTSTANDING PERFORMANCE BY A CAST IN A MOTION PICTURE

Matt Damon · Jessica Chastain
Kristen Wiig · Jeff Daniels · Michael Peña
Sean Bean · Kate Mara · Sebastian Stan
Aksel Hennie · Mackenzie Davis
Benedict Wong · Donald Glover
Chen Shu · Eddy Ko and Chiwetel Ejiofor

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PUSAT PERPUSTAKAAN